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A JOURNAL OF NATURE AND MAN **PACIFIC DISCOVERY** IN THE PACIFIC WORLD

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PRE-DISCOVERY

"YOU ARE ONLY AN HOUR from a paved transcontinental highway. Along that highway you have accepted casually the facilities of modern American travel – stores, service stations, cafes, motels. Thirst – real thirst – is inconceivable. When you want water you ask for it – or turn on a tap.

"But less than half a century ago a man – or what was left of a man – stumbled down from the very mesa on which you sit, and fell in the sand beneath the ironwoods there. He was bellowing in a hoarse, rasping, inhuman voice. . . He was naked and his fixed eyes were staring from a burned face. His lips showed only as ridges on blackened tissue. . ." This was a Mexican named Pablo "who had been on the desert eight days with only two days' water supply," Harold O. Weight relates – but he was lucky. The Smithsonian scientist, Professor W J ("No Period") McGee, found him–within a few yards of the water of Las Tinajas Altas. Mr. Weight, who is editor of a famous ghost town newspaper redivivus, *Calico Print,* had pondered the effects upon history of the presence or absence of water in a particular place. "History is made by men, but more often than not, the hand of nature is tipping the scales that determine men's triumphs and defeats. . . Drouth ended the growth of a native civilization in the Southwest, and modernly, scattered migrants from the Dustbowl. The manner in which simple geology can cancel man's claims to history-making may be less obvious, but it is no less real. For a near-perfect example, we can look to the ancient watering place of *las Tinajas Altas* – the High Tanks – in the granite mountains of southwestern Arizona near the Mexican border." Mr. Weight sees the geology that made the tanks that kept the water that saved the men who "moulded the history of the West" – in the January-February 1952 issue, fifth year of *PD's* history.

DISCOVERING PD'S AUTHORS

"For nearly twenty-five years **Harry E. Rieseberg** has hunted for the wealth that lies hidden beneath the sea," runs the jacket copy for the tenth printing of his book, *I Dive For Treasure* (Dodd, Mead). It is fitting, therefore, that Lieutenant Rieseberg should end his "Story Behind Cocos Island and the 'Loot of Lima'" with an account of routine occupational activity – under the waters of Manta Bay in Ecuador (the author has sent us a correction to the slip that put the bay in Peru in last issue's "Pre-Discovery"). But the present story is of the anything but routine activity centering for more than 100 years around that inscrutable goal of treasure seekers – Cocos Island. . . . Watch for the movie *City Beneath the Sea,* based on Rieseberg's discovery of the sunken pirate base in the Caribbean, Port Royal. . . ¶Quite different treasure lures **George M. Bradt** and his wife into odd corners of the Southwest and Mexico, when school's out. Come summer, the Bradts close up the Overgaard School in Sitgreaves National Forest, Arizona – they are the entire faculty – and hit the road. It may lead them to archeological diggings, good insect collecting grounds, into the Sierra Madre across the border to photograph some of North America's most isolated Indians, or just out on the desert to study wildlife. . . ¶**Elizabeth Borton de Treviño's** "Feathered Serpent" turned up in the Library when we asked our fellow-editor and Academy Librarian Veronica Sexton to dig us out a Quetzalcoatl or two for the "Temple" story. Result: *three* Quetzalcoatls and a feathered serpent! . . . ¶If you got worked up over the *Black Widow: America's Most Poisonous Spider* within the last five or six years, you probably came across the book of that name (University of North Carolina Press, 1945) by Raymond W. Thorp and **Weldon D. Woodson.** Mr. Woodson deals with another popular arachnid, and the origin of a dance, in "Tarantula –Tarantella." D.G.K.

IN THIS ISSUE

THE COVER COPY

Little man eating his lunch–perhaps he was a Toltec stone mason who posed for his portrait in clay during the noon hour, while Quetzalcoatl's temple was a-building at Ixtlán del Río. He eats a *taco* – Mexican equivalent of a sandwich. George M. Bradt photographed the foot-high figurine in the state museum of Nayarit at Tepic.

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ONE TROUBLE with being able to read, as G. K. Chesterton has somewhere pointed out, is that it keeps one from appreciating the beauty of neon signs. Another trouble, which we are here going to point out, is that the reader is constantly coming across well-turned phrases, epigrams, and quotable quotes, making a mental note of them, and then discovering ten or twenty years later when he has occasion to use them, that he can't remember the exact wording and has forgotten the source. This causes a good deal of literary frustration, and a certain amount of unconscious or even conscious plagiarism, which this writer for one is willing to condone. For example, to find the exact quotation referred to in the first sentence above would take a minimum of four or five hours, and could take weeks, and we might find out at last that it wasn't G. K. Chesterton after all, but was something we read in *The New Yorker.*

The prevalence of the need to pursue the elusive quotation is attested by the fact that Bartlett's Familiar Quotations, first copyrighted in 1875, has gone through numerous editions, and holds its place today as a standard work of reference. Bartlett's is good as far as it goes, but it is not enough. Every writer feels the need of a companion volume, which would have to be considerably larger, a dictionary of *un*familiar quotations.

Six months ago when writing about semantics *(Pacific Discovery,* vol. 4, no. 3, pp. 2-3) we wanted to use a quotation that seemed particularly apt, but had to give it up because we couldn't find the source. The quote was, as we remembered it, "If you ask me, I don't know, but if you don't ask me, I know very well"; and it seemed highly apropos of our comments on nonverbal thinking. It sounded somehow like Voltaire, and we tried that lead first, but without success. We tried libraries and librarians, and pestered our literate friends, all without avail. Nobody had ever heard of the quotation. Last week we found it – as usual in such cases, while looking for something else. It is from St. Augustine *(Confessions,* Bk. XII), and it reads in English translation: "What is Time? If no one asks me, I know: if I wish to explain it to one that asketh, I know not."

If you are curious as to how we happened to be reading the *Confessions* of St. Augustine, we weren't –although we now are sufficiently interested that we well may do so. It all came about in this way. We started to read a new book, *Time's Arrow and Evolution,* by H. F. Blum (Princeton University Press, 1951), and one of the problems discussed by Dr. Blum set us to re-reading an old book, *The Problem of Time,* by J. A. Gunn (Richard R. Smith, Inc., New York, 1930). There, near the bottom of page 33, we found the quotation from St. Augustine–right where we had read it twenty years ago.

We have given you this quote, thus belatedly, for several reasons. One is that we were so pleased to have found it that we were determined to use it even if we had to drag it in by the ears. Another is that it shows how garbled a quotation can get from lying around unused a couple of decades in a dusty corner of one's brain. Third, this may well be the first time in history that anybody has confused Voltaire with St. Augustine or with any saint whatever. Fourth, fifth, etc., it gives us some thoughts around which to build an editorial that has to go to press within the week.

Thus far this editorial sounds more than we wish like "stream-of-consciousness" writing; and we may as well digress at this point to pay our respects to that school of expression. This is not an irrelevant digression, because we are talking about communication and stream-of-consciousness writing is presumably a form of communication, although it is hard to tell what is being communicated except in the biological passages, where the meaning is usually clear enough. There is nothing new about contemporary literary fads–certainly not the functions of the body, and not even the affectation of skipping capitals and punctuation. The early Greeks got along without punctuation, and furthermore ran their words together like this sothatisveryhardtotellwhereonewordleavesoffandthenextbegins. They also wrote from left to right on one line, then dropped down a space and wrote from right to left, thus zigzagging down the column. The early Hebrews went them one better, and wrote without vowels, something on this order: wh grndmthr wht bg tth y hv sd lttl rd rdng hd. No recent writer looking for a gimmick has tried this. We pass it along as a suggestion. Don't forget that a page-proof copy of James Joyce's *Ulysses* sold last month for $2,300.

Now to return from our digression, while we were seeking vainly among the epigrams of Voltaire for a statement made by St. Augustine, we came across something Voltaire *did* say that is apropos of the present discussion: "Men . . . employ speech only to conceal their thoughts." This, like most epigrams, is an overstatement. With the exception of the stream-of-consciousness school, we believe that very few writers or speakers are willfully obscure. But it would be true to state that many people speak and write *as if* they were trying to conceal their thoughts. And many succeed beyond their wildest dreams.

In the same issue of *Pacific Discovery* as the editorial on semantics referred to above, there appeared an article entitled *Cyphonautes: the Bent Sailor.* Your editors, who check and double-check

EDITORIAL

the authors, themselves, and each other, took occasion to look up "cyphonautes" in the *Century Dictionary,* and found it defined as follows:

The larva of a gymnolaematous polyzoan of the genus *Membranipora*. . . .

This is an example of a definition that is scholarly, strictly correct, and thoroughly useless, because anybody who can understand the definition would not have to look the word up in the first place.

There may be occasions on which this kind of doubletalk is useful – for example, you could call an opponent an ornithocerebral, osteocephalic homunculus and doubtless be out of gunshot range before he figured out that you meant a birdbrained, boneheaded runt – but this not a way to communicate information. If you have an idea to transmit, you have to use words that can be understood by the receiver, and that mean substantially the same thing to him that they do to you.

While mulling these matters over, we came across a small book entitled *The Mathematical Theory of Communication* by Claude E. Shannon of the Bell Telephone Laboratories and Warren Weaver of the Rockefeller Foundation (University of Illinois Press, 1949). This book is, even wholly apart from its subject matter, an important contribution to semantics. The first part is a highly mathematical treatment of communication from the standpoint of the telephone engineer, while the second part is a lucid explanation to the general reader of what the first part is about. This small volume blazes a trail which we hope and venture to believe may be followed. To glance through it is like picking up a treatise in a foreign language and finding an English summary at the end.

We mean no disrespect to Dr. Shannon in comparing his treatise with a foreign language. We can cite good precedent. It is related that once, when the faculty of Yale University were debating whether the students had greater need of mathematics or of languages, Josiah Willard Gibbs rose to his feet and said, "Mathematics *is* a language." This is commonly regarded as the shortest speech of record at a faculty meeting.

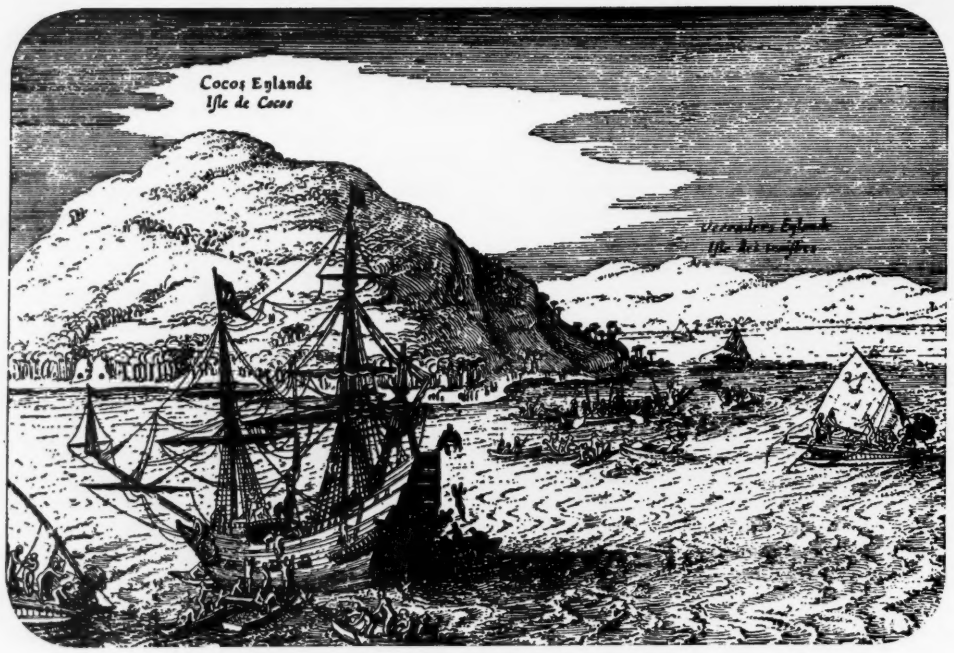
In case you are wondering what a mathematical theory of communication is all about, let's approach it this way. As we write these lines on a Saturday afternoon, we are within earshot of a stadium in which two university football teams are engaged in extracurricular activities. At frequent intervals a prodigious roar of sound reaches our ears, which we take to mean that one team or the other has gained at least a temporary advantage. Assuming that rooters for the home team have a numerical superiority of, say, 2 to 1, we can deduce from the volume of sound which side is making the yardage. There are, it is true, other possibilities. The roars of sound *may* indicate successive ovations being given beloved professors of philosophy, Greek, and mathematics, as they enter the stands. The probability of this is, however, statistically small. Here we have a very elementary mathematical theory of communication.

Shannon and Weaver's treatment is a bit more complicated than this, and correspondingly leads to more significant conclusions. One is that when we speak or write English, what we say is approximately 50 per cent determined by the structure of the language. One word not only leads to another; it helps decide what the next word will be. For example, if we write "the," there is a very small probability that the next word will be "and" or "of" and a still smaller probability that all three words will occur in sequence. The probability is not zero, as we can prove by referring to the "and" of the previous sentence; but such a sequence as *the and of* is exceedingly uncommon. Knowledge of such probabilities helps communication engineers to figure out how to get the most messages over a given system in the shortest time.

Another point developed by Shannon and Weaver is that communication results in an increase in *entropy.* This is something not easy to explain in one paragraph, but we may as well have a go at it.

Entropy is a measure of the capacity not to do work. It is the mileage you don't get out of that tank of gasoline – the energy expended in friction and heat. Generally speaking, the energy that can be got out of a physical system or process is a little less than the amount put in. The physicist, who never writes any energy off inventory, charges the difference to entropy, which is an index of the *unavailable* energy of the system. By this time the reader has probably begun to generate some friction and heat himself, and may already have remarked to his wife that "increase in entropy" sounds like more of nothing. Why make such a fuss about energy you can't get back? Well, you can't get your income tax back, but it's a good idea to keep track of it nevertheless. Entropy is a kind of universal, built-in tax – nature's cost of doing business. Since it is assessed against nearly every transaction, the entropy of the universe is steadily increasing. Conversely, the available energy is decreasing and the universe is getting more and more run down and disorganized. Physical scientists seem quite enthusiastic about this, although other people are likely to regard the matter with mixed emotions.

If communication involves an increase in entropy, as stated by Shannon and Weaver, this is a good thing to know. The knowledge might promote conciseness of expression. R.C.M.



THE STORY BEHIND

Cocos Island and the "Loot of Lima"

HARRY E. RIESEBERG

AGAIN I WAS GETTING RESTLESS, having spent a vacation that lasted through some pleasant weeks after returning from a most successful treasure salvage expedition. I knew what that meant. It wasn't exactly a question of whether or not I would take off again; what I had to decide was just where I was bound for this time.

There are always practical factors which enter into that choice: the exactness of one's information about a sunken ship wreck, how much money went down with her, how far away she lies, depth, working conditions, costs. And, complicating such considerations with me is that basic urge of the deep sea treasure salvor: he longs for new seas, new islands, untrodden sea bottoms, new ways to reach and bring up his find.

Thousands of wrecks, and a terrific lot of ocean spread around the globe. Where would it be this time?

While I was in this state of uncertainty I gave my collection of files and charts and maps a thorough working over. For weeks I weighed a dozen different plans, threw them away, picked them up again, looked for a new one. Costs, chances, the weather, all had to be taken into consideration.

Manta Bay, off the coast of Ecuador, came up in my researches. Some new material had recently drifted in to me, indicating that an old, unidentified hulk lay close to shore in the bay. There was fairly good evidence that she had more than $100,000 in gold in her. It looked like a good bet, not too deep a dive, better protected waters than most prospects rested in, the season right, and not too big a salvage ship needed for the trip.

At the same time something else kept buzzing in my mind. In all the research work I'd been doing through the years, the name of Cocos Island was forever popping up—Cocos Island and the "Loot of Lima," the lodestar of treasure hunters for more than a hundred years. On my desk lay a dozen elaborately-printed and artistically-sketched prospectuses, offering shares in successive expeditions to search for the lost Lima riches. Sometimes the promoter had the ship and was

selling stock to get working capital. Sometimes straight partners were wanted. In every case the "Loot of Lima" was played up big.

My check-up showed more than *four hundred* properly equipped and financed expeditions which had tried to recover the "Loot" at Cocos Island; and it looked to me as if my life job as a salvor demanded my getting this story straight. I really ought to find what was in it, if anything. On the way to Manta Bay it would be simple to go to Cocos and investigate on the spot.

In a few weeks I located a good, small schooner. The work of outfitting her and getting a crew went ahead rapidly. Several weeks later, right on schedule, we made a landfall at Cocos.

Looking at the lonely patch of land, 256 miles off Cape Salsipuedes in Costa Rica, I saw Chatham Bay and the slopes beyond; I couldn't help thinking of the hundreds of people who had come there, lured on by one of the strangest, most persistent legends of modern times.

The "Golden Virgin" of the Lima Cathedral

Scratchboard drawing by Mallette Dean

It all began – accounts vary in detail—with a Captain John Keating of St. John's, Newfoundland. In 1841, Captain Keating had taken a cargo from that city to the West Indies; he was loading for the home voyage when he was approached by a man he describes as "handsome in appearance and having about him something of an air of mystery, of one who had been far, and seen and participated in many things." The mystery man was very anxious to get Keating to take him north. He gave his name as William Thompson. Keating eventually agreed to give him passage. On the voyage northward to St. John's, the Captain became interested in Thompson, and on arrival invited him into his home.

One night, in a sudden burst of confidence, the mystery man blurted out that he had a secret which would make them both rich enough to "buy the whole of Newfoundland." Keating sat up, insisted on knowing the details of the secret. Reluctant at first, Thompson unbent and told his story.

Claiming he had been the master of the British brig *Mary Dier,* Thompson said he had the craft anchored in the harbor of Callao, during a period of war between Peru and Chile. The Chileans were driving in hard; and the Peruvian government feared the enemy might invade and sack Lima. They particularly feared the very wealthy cathedral of Lima might be looted of all its riches, including the famous statue of the "Golden Virgin." The government determined to save the cathedral's wealth.

All gold and silver ornaments were stripped from their places and sent down the rutty roads leading to Callao. The church treasures were not all that arrived at the port; the wealth of the prosperous planters and mine owners was rushed there also, on pack mules, donkeys, llamas, horses, and on the backs of Indians. This huge accumulation of treasure was piled high on the rickety docks of Callao, awaiting shipment, when word came that the Chileans were actually closing in. Not a single Peruvian ship lay in the roadstead; but Thompson's craft was there, the *Mary Dier,* empty and ready to take a cargo. Here was a solution. Why not charter the brig, and put the treasure under the protection of the British flag, where it would be safe from confiscation by the Chileans?

A rowboat took a group of leading Peruvians out to the anchored brig. They put the proposal to Thompson. He agreed, and the loading started immediately.

All that gold and silver did something to him, Thompson confessed. The sight of it scuttled his moral sense. When the hurried loading was finished, the *Mary Dier* weighed anchor suddenly. Instead of remaining in port for final orders, as the Peruvians expected, Thompson put her out to

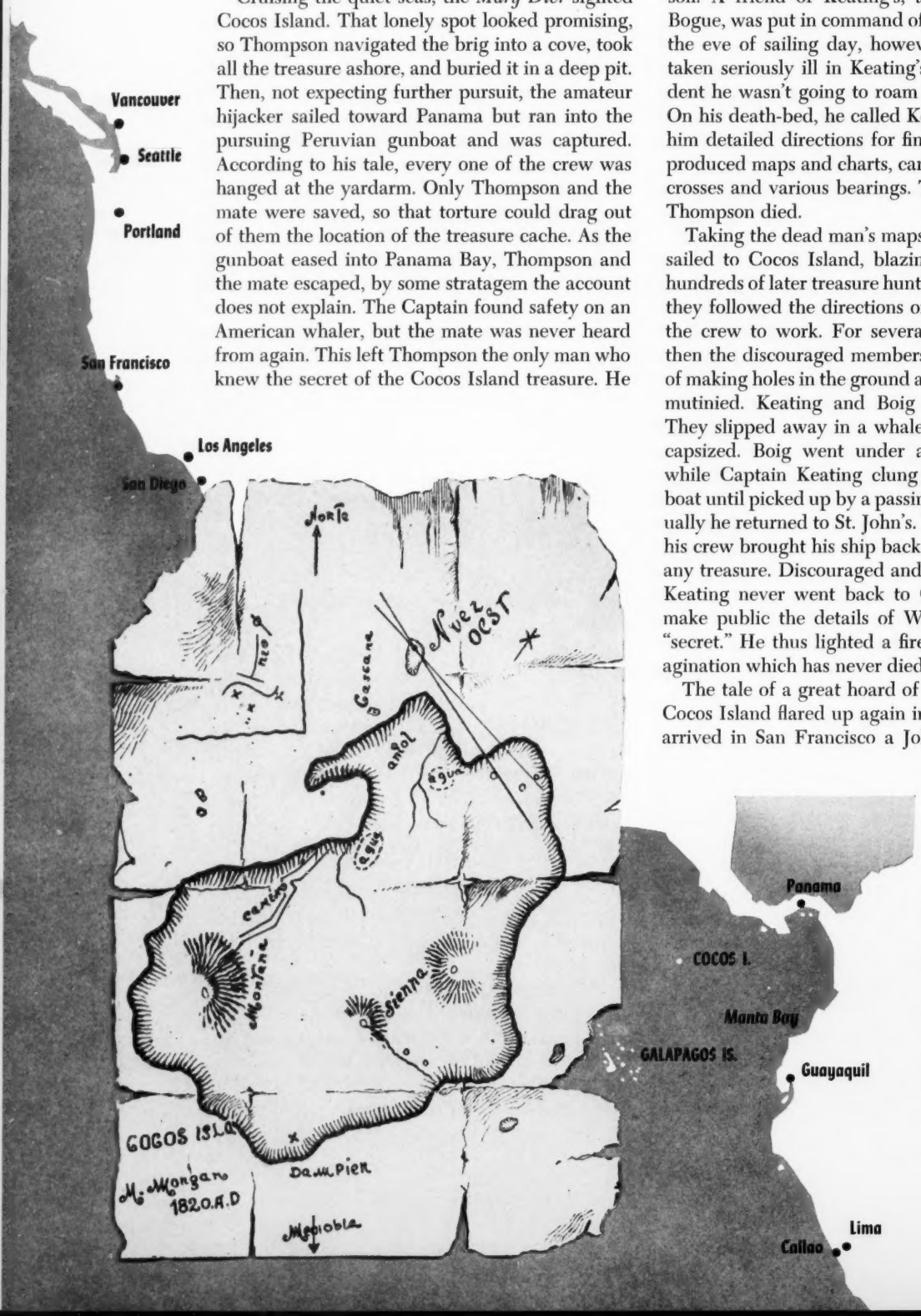
sea. A Peruvian gunboat happened to be just coming into the harbor. She gave chase; but Thompson, with no special plan in mind except to escape with his loot, outraced the gunboat and headed north.

Cruising the quiet seas, the *Mary Dier* sighted Cocos Island. That lonely spot looked promising, so Thompson navigated the brig into a cove, took all the treasure ashore, and buried it in a deep pit. Then, not expecting further pursuit, the amateur hijacker sailed toward Panama but ran into the pursuing Peruvian gunboat and was captured. According to his tale, every one of the crew was hanged at the yardarm. Only Thompson and the mate were saved, so that torture could drag out of them the location of the treasure cache. As the gunboat eased into Panama Bay, Thompson and the mate escaped, by some stratagem the account does not explain. The Captain found safety on an American whaler, but the mate was never heard from again. This left Thompson the only man who knew the secret of the Cocos Island treasure. He had made his way to the West Indies, where in the course of time he met Captain Keating.

On the strength of this melodramatic yarn Keating agreed to furnish a ship and raise money among his friends for a trip to Cocos with Thompson. A friend of Keating's, a Captain Boig, or Bogue, was put in command of the expedition. On the eve of sailing day, however, Thompson was taken seriously ill in Keating's home; it was evident he wasn't going to roam the seas any more. On his death-bed, he called Keating to him, gave him detailed directions for finding the cache; he produced maps and charts, carefully marked with crosses and various bearings. That night William Thompson died.

Taking the dead man's maps, Keating and Boig sailed to Cocos Island, blazing the trail for the hundreds of later treasure hunters. Arriving safely, they followed the directions on the maps and set the crew to work. For several weeks they dug; then the discouraged members of the crew, tired of making holes in the ground and finding nothing, mutinied. Keating and Boig escaped at night. They slipped away in a whaleboat, but the craft capsized. Boig went under and was drowned, while Captain Keating clung to the overturned boat until picked up by a passing schooner. Eventually he returned to St. John's. Many months later his crew brought his ship back there too—without any treasure. Discouraged and skeptical, Captain Keating never went back to Cocos; but he did make public the details of William Thompson's "secret." He thus lighted a fire in the public imagination which has never died.

The tale of a great hoard of wealth planted on Cocos Island flared up again in 1853, when there arrived in San Francisco a John Welch and his



The story of Cocos is written in charts: "authentic" maps showing where the treasure is buried — these changed hands many times, often violently, no doubt; crude sketch maps, like this one in Spanish; the boat sheets of naval surveys like that of the French brig Le Génie, *raw material of the published charts of today.*

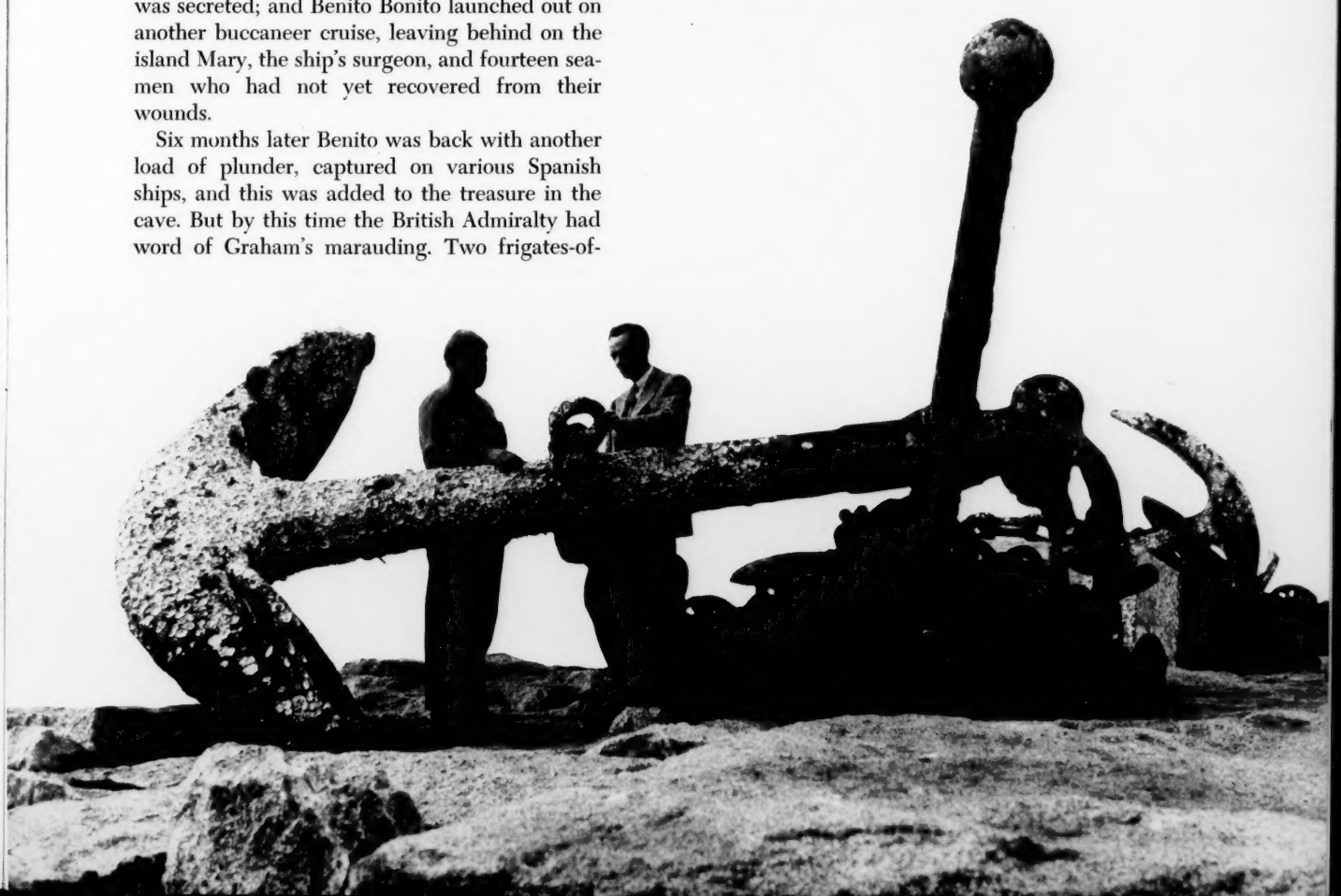
→ *The author, right, with an assistant, examines a well-fouled anchor brought up in one of his treasure salvage operations.*

wife, Mary. It was Mary who had the ingenious story to tell. In 1820, her account ran, the British naval brig *Devonshire* was commissioned for a long cruise in the South Seas, under the command of Captain Bennett Graham. Once in the Pacific, Captain Graham proposed to his brother officers that they make prey of some of the enticing Spanish treasure ships which were still plying the Pacific waters. Most of the force agreed; those who hesitated were put ashore at Panama.

It was there that Captain Graham met Mary Welch, then a girl of eighteen. When the *Devonshire* put out to sea again, Mary was aboard as the Captain's "lady." Graham changed his name and became known as "Benito Bonito." The vessel went northward toward Acapulco, Mexico, and not far from that port sighted two treasure galleons escorted by three men-of-war. In spite of the odds, Benito Bonito attacked and defeated all five ships. The *Devonshire* was so badly damaged that both crew and treasure were transferred to one of the galleons, the *Relampago*. The pirates then sailed for Cocos. In a gulch that notched the bleak face of a mountain cliff at Wafer Bay, a square shaft was sunk; from the bottom a tunnel ran thirty-five feet—where it conveniently opened into a natural cave. In this cavern the immense treasure was secreted; and Benito Bonito launched out on another buccaneer cruise, leaving behind on the island Mary, the ship's surgeon, and fourteen seamen who had not yet recovered from their wounds.

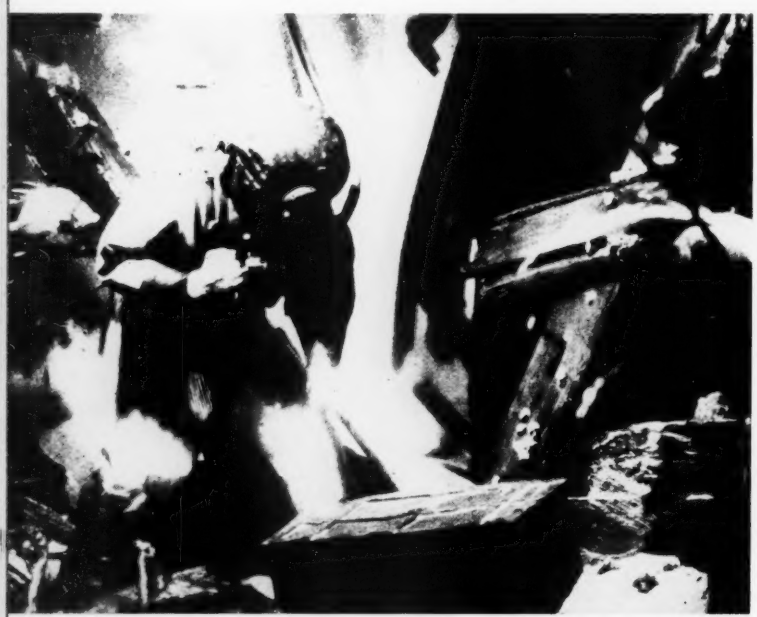
Six months later Benito was back with another load of plunder, captured on various Spanish ships, and this was added to the treasure in the cave. But by this time the British Admiralty had word of Graham's marauding. Two frigates-of-war were combing the Pacific for him. Putting out on his next cruise with Mary aboard the *Relampago,* the buccaneer sighted the British off the Costa Rican coast. The *Relampago* was unable to outrun the big warships and was driven ashore. The pirates were seized and thrown into irons. Benito Bonito, realizing there was no chance for him and knowing that a woman might be spared, gave Mary his charts and maps, with all the bearings for locating the treasure. Two days later, Graham and his officers were hanged at the yardarm. The crew and Mary were taken to England to face trial, and were sentenced to the British penal colony in Tasmania. There Mary met and married John Welch. When her time was up, she came with him to San Francisco.

Mary Welch cut a wide swath with her racy, piratical yarn. She must have told it well, for Main & Winchester, one of the largest bank-brokerage firms on the Pacific Coast at the time, organized a group of wealthy merchants and bankers to finance "The Cocos Island Prospecting Company." And, in the spring of the next year, 1854, the expedition sailed from San Francisco on the steamer *Francis L. Steel;* but when it reached Cocos, Mary was unable to locate the cache. After many days



of searching, the lady claimed that time and the elements had so changed the contour of the island in thirty-four years, that she couldn't find her landmarks. She made some guesses, and several tunnels were dug, but nothing was found. Gradually the expedition ran out of provisions. The searchers gave it up, and sailed back to San Francisco.

These were two of the main stories that sent people scurrying to the little island off Costa Rica in vain search for hidden gold. Mary Welch's tale has been pretty much abandoned in recent years. Benito Bonito certainly did exist; but beyond that bare fact there is nothing to substantiate any of her reports. I can say that with some authority, because I've investigated the whole question carefully. There hasn't been a single record I've been able to find which would make her story stand up; nothing to verify her account of being taken to England and there tried and sentenced to the penal colony in Tasmania. None of the official books of pirate trials, down through the more recent Newgate Calendar, lists any such case. Her



Thousands of wrecks are strewn about the sea-bottoms of the world, an irresistible challenge to the adventurous.

charts and maps proved their own worthlessness on the trip of the *Francis L. Steel.*

As for William Thompson, the mysterious stranger, he has no historical background outside of Captain Keating's tale. Various writers of features and books have given different dates to his supposed exploit, in making off with the treasure of the Peruvians and the riches of the Cathedral —the so-called "Loot of Lima"—between 1815 and 1822. In addition, people who have taken seriously the charts which Thompson was supposed to have handed over to Captain Keating, have not been able to find a single coin in all their attempts to locate the treasure on Cocos Island.

But people never seem to give up trying. Long after I dropped into Chatham Bay with my schooner, to investigate on the scene, as recently as 1940, American newspapers carried stories of a new expedition. On January 5 of that year, headlines told of discovery of the treasure. An air-mail letter from the curator of the Costa Rica National Museum to the Consul in Los Angeles, Sidney Field, brought the information, and part of the newspaper story follows:

The expedition sailed from Balboa Island last November on the schooner *Spindrift*, under command of Captain Hugh M. Davenport. In the party were Charles Forbes and James Forbes, Jr., of Riverside, California, grandsons of the late Alexander Forbes, whose exhaustive study of maps and documents relating to the "Loot of Lima" provided the impetus for the hunt.

The treasure, reputed to be $60,000,000 in gold plate and jewels, is from the Cathedral at Lima, Peru. The pirate ship, *Mary Dear*, long years ago agreed to convey the treasure to a place of safety. Instead, the ship's crew murdered the church guard and reputedly hid the treasure on Cocos Island.

Backing the expedition is a syndicate of Riverside and Balboa business men. The treasure seekers have an agreement with the Costa Rican government which owns the island that permits them two months for digging after the first shovelful of earth is turned. The Costa Rican government may extend the time if necessary and will get one fourth of all treasure recovered.

On January 9, there were more headlines. The ship, homeward bound for new supplies and equipment, was lost somewhere in the Pacific. Her radio was strangely silent. The mystery was built up; it was even suggested that while the Forbes brothers were returning from Cocos with part of the huge treasure, they might have been captured by modern pirates who hijacked the gold.

But, in the middle of all this excitement James

Wafer Bay, right, and the ruins of Gissler's cabin. Photos by Ernest Schoedsack from The Arcturus Adventure *by William Beebe (New York, 1924). Read Ruth Rose's chapter in this book for a fuller account of Cocos' piratical history, and the story of August Gissler, whom Ruth Rose interviewed in his Brooklyn flat after the* Arcturus *voyage.*

Forbes arrived by air from Central America. He revealed the party had not actually found the cache, but:

> We know the treasure was buried in a cedar chest encased in rawhide. In our excavations we have brought to light pieces of cedar foreign to the island. This convinces me that we have located the spot as indicated in maps and papers of my grandfather. We will know more when the government scientists of Costa Rica have made tests of the sandstone and those pieces of alien cedar.

On February 24, another shipload of Forbes's friends left for the golden island to help bring back the gold. They took with them "twenty-five tons of hydraulic digging machinery, twin-drum drag line, caissons and bulkhead material." It looked as though it were all over except for sharing the spoils. The Costa Rican government sent a detachment of soldiers to the diggings to make sure nobody would muscle in on the operations, also that the government's 25 per cent of the "Loot of Lima" would be forthcoming.

Then, on April 7, the Forbes party sailed into Los Angeles harbor. They were "happy but lootless." One of the party told reporters:

> We excavated at the point where the chart, owned by J. A. Forbes of Riverside, a member of the expedition, showed the treasure should be. After going down fifteen feet we reached bed rock. We enlarged the excavation until it was about sixty feet long, moving boulders that weighed two to six tons each. After three weeks of this we decided this was just another unsuccessful Cocos expedition.

Their cycle of hope and work and failure had followed the same course as that of the hundreds of other expeditions which preceded them—and, I suppose, will come in the future.

The Forbes expedition—but one of several since then—arrived after my own visit. But I looked over the rail of my schooner at the small swift stream that rushes through a narrow ravine and spreads in a broad shallow across the beach at Chatham Bay, studded with barren boulders, and I could see the carved records of many ships that had come before me.

Hans Kramer met me—an old man with a white beard, the island's only inhabitant. Kramer had lived there for years. He had been a friend of August Gissler, who had spent twenty years on Cocos, hopefully searching for the "Loot of Lima." We walked toward Gissler's shack, a tumbling pile of boards; Kramer tugged at his white beard with a square brown hand.

"Zo, Lieutenant," he said, after I had made myself known. "You haf gome looging for de gold, eh?" His German accent was quite thick.

"I'm not much interested in buried treasure," I said. "But I happened to be down this way on my passage south, so I thought I'd look around."

"Ja, always it iss de same. De gold dey gome for." He slipped a hand into his trouser pocket and drew it out again. "Here, my friend, here is de great, de famous dreasure of Cocos."

He flipped his thumb and a coin glittered in the air. When I caught it and examined it, Kramer's faded blue eyes were twinkling with amusement. It was a gold doubloon, bearing the imprint of Charles III of Spain and dated 1788.

"Then there *is* gold here!" I said.

The white beard wagged back and forth, as he shook his head vigorously. "No. no, Lieutenant. Dat one coin iss all de gold dat efer has been found on dis island. My friend, August Gissler, he found it. Twenty years he liffed here—and dat vas all he got. Me—I haf found nodding. I know vat I say—dere is no dreasure on Cocos Island."

From treasure-seeker to treasure-sucker can be a very short jump. I realized this sharply, walking with old Hans Kramer among the rocks of Cocos. All around were the relics of a century of tragic hopefulness: rain-filled pits, rusted spades, picks and shovels, rotting remains of huts, supply boxes, broken equipment. There was hardly a patch of unmarked ground. We wandered down by the bay and looked among the boulders in the shallow where the stream rushed toward the sea; rowing from rock to rock in the dinghy, we examined the inscriptions carved there, melancholy record of the ships that had kept coming to Cocos year after year.

The oldest of the rock carvings appeared almost as if they had been written in invisible ink. At low tide you couldn't decipher them on the sun-dried rocks; but when the waters rose and wet the stony surfaces, the letters and dates stood out clearly. I copied page after page of the inscriptions. Some of them were:

J. Maria ZELEDON Julio 22 1879
BARK Java Nov 14/ 56
HENRY HALL of LONDON
MARIPOSA. 1:6 Px 1871 x 1870
SHIP INDIENCHIEF of NEW LONDON 1848
Brick des Mte Ie GENIE, Comm PML Cte de GUEYDON 1 Nov. 1846*
FRANCIS L. STEEL Mar. 28 1854

I thought of all the people who had come to this lonely island from every part of the world, pouring millions of dollars into attempts to find a treasure that had never been buried on Cocos. One name I did not see there was that of Sir Malcolm Campbell, the English speed king, who invested $100,000 in excavating among those barren rocks.

It was all a clear demonstration of the folly of setting out after treasure without adequate research, without hard-boiled checking of all the data, the probabilities and the impossibilities. There was the record of it, written plainly. And there was I, on my way to Manta Bay and another sunken wreck, with the certain knowledge it was somewhere near the spot on my map; at least I had worked beyond that wild-goose stage: I had a good chance of finding gold—as I had been finding actual treasure and living on it for some years. It was my business.

Kramer came aboard the schooner for a meal and told me about his friend, old August Gissler, a German sailor who sailed for Cocos Island in 1894, determined to devote the rest of his life to seeking the fabulous "Loot of Lima." The legend of Cocos was at its height about that time; Gissler heard the tales of the many hopeful adventurers who had voyaged to the island fruitlessly. He had his own idea: he would make a full-time job of the search.

He brought his wife with him to the uninhabited island; together they built a small house and planted a vegetable garden. There were wild pigs roaming about, and the lagoons were filled with a wide variety of fish. When the matter of living had been settled, Gissler buckled down to the hunt, confident he was going to turn up a great fortune. Calmly and methodically, day after day and month after month and year after year, he

*See "Report on Cocos," by Henri Louis Comte de Gueydon, *PD*, November-December 1948, pp. 8-14.

"I located a good, small schooner" — the Constellation, *205 feet in length. We sailed from Washington, D.C., down the Potomac, around Florida, and through the Panama Canal.*

The Santa Cruz *– "I still wondered if I had found her on the other trip –"*

searched Cocos from tip to tip, spading, digging, laying bare the bed rock in a hundred places. All he ever found was the one coin, probably dropped by a member of some ancient crew which had put in at Cocos for water in other days.

To Gissler and his wife, days meant little; they kept track of time by the expeditions that came on the same quest. Sometimes these expeditions were in rapid succession; then months would go by without a single ship. Once they were quite alone for two years. Some of the searchers had "authentic maps," others only vague hopes. But all followed much the same pattern. They arrived full of enthusiasm, worked for varying periods of time, left—empty-handed. The steady parade of unsuccessful adventurers, plus his own failure, finally convinced Gissler that he and all the others were victims of a wild story, spun out of some imaginative mind. By that time he was an old man, burned out by turning spade after spade of sand and earth in his vain search. When Kramer joined him, he had become attached to Cocos; he was happy and had no desire to go back to any other way of life. He stayed on, and the Costa Rican government gave him permission to remain as long as he liked, honoring him with the pleasant but empty title of "Governor."

The treasure-fevered searchers continued to come; he was always at hand to greet them.

"Ja," said Kramer. "He told dem dey were fools, but dey don't belieff him. People mostly got to find dat oudt for demselves. But you, Lieutenant, you vill save yourself much drubble iff you forgedt de gold—for dere is no buried dreasure on Cocos Island."

Eventually Gissler's wife died. After twenty years on Cocos the old man went to live in Brooklyn, leaving Kramer alone on Cocos to watch the expeditions come and go.

I spent several days wandering around, while the crew of the schooner relaxed after the voyage down from the States. Their favorite sport was trying to lasso sea lions, or sea elephants. Kramer showed me the many excavations, told me which searchers had made them, spoke of incidents occurring during the digging. I got more and more curious about the story back of this never-ending treasure search. How had it all started? I determined to get at the truth some day.

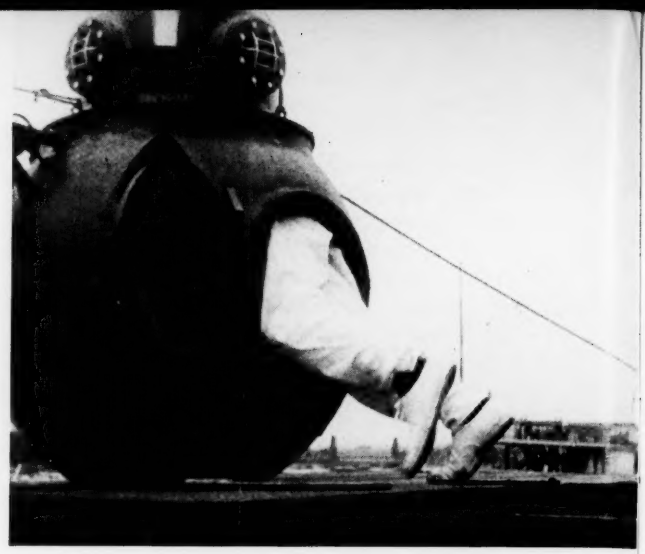
Then one bright morning we sailed out of Chatham Bay, leaving Kramer, a lonesome figure on the beach, waving at us. Manta Bay was ahead;

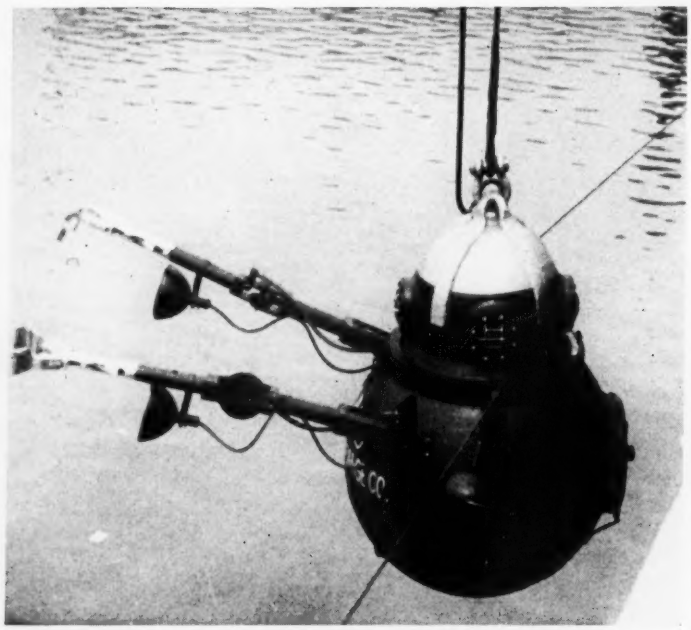
we worked down the coast past Panama, and glided along toward the Equator. The weather was steady, warm at night, but pleasant; the whole passage to Manta Bay was a good one.

The familiar bare headlands stood up before us as the schooner eased into the Bay. Over at one side I saw the reefs where I had gone down a year before and salvaged $40,000 from another ship's hulk. A lot had happened since then. I had wandered many thousands of miles. Now I was back, but not looking for the *Santa Cruz* this time—I still wondered if I had found her on the other trip—but going after something easier. The schooner slid into calm water, away from the reefs, on the

far side of the bay. I couldn't help smiling when I thought back at the trouble I had had on my previous salvage in these waters.

My records indicated the hulk I was looking for lay on the floor of a reach of the bay, beyond a jagged line of rocks, almost in the shadow of a tall, stark headland. I had secured what seemed to be accurate bearings—in response to letters to Madrid, to Lima, to Lisbon, where reference to the official archives brought out a fairly detailed story, although the name of the hulk remained unknown. I'd come across the first mention of it





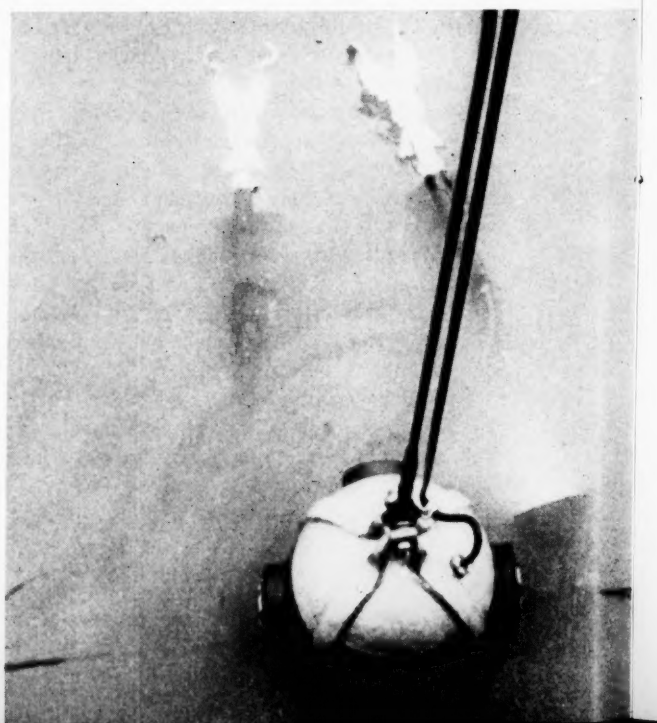
"They slung the robot over the side" –

when getting data on the *Santa Cruz* – a mere line or two, telling of another unidentified galleon that had been driven into Manta Bay in a terrific hurricane, and had smacked on the rocks. But going deeper into it, I'd learned that for centuries the people living around Manta Bay had known about the wreck, handed the legend down from father to son. Here there were circumstantial stories of parts of the wreck being washed ashore; these gave exact positions; coastal villagers fishing in those waters had seen the hulk below on days when the water was quite clear; coins had been picked up on the shore after a storm.

We anchored the schooner close in. I went ashore and made the usual reconnaissance, taking bearings and observations, making many notes, getting the spots mentioned in the records straight with the actual sight in front of me. I gathered from the charts that the hulk would lie at about twenty fathoms; that should make diving and recovery with our new diving robot fairly easy.

It was too late when I came back from shore that day to do any cruising; so I spent the evening studying the maps; but the next morning we were up at dawn and pulled the hook. Guiding the schooner up close toward shore, we roved back and forth, watching the needle, looking down into the water, casting around for bearings and checking them with the charts.

Failure to find anything puzzled me. The records were precise, the bearings were noted clearly; but for two days we cruised up and down, with never a sign of anything to show for it. The tides



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" 'Get the gear ready, I'm going down.' "

were very swift on that side of the bay, and we had a lot of trouble keeping the schooner where we wanted her. On the third day a small storm stopped the hunt; with rain sweeping across the decks and wind thrumming through the rigging, I sat in the cabin, staring at the guides which had betrayed me. I felt low, and wondered if I had come all this way to draw a blank.

It was clear the next day, though, so we put the schooner to cruising about again, shifting farther along the bay, making wider sweeps. About noon we were making a reach, much farther out from the headland than we'd been working, when I saw shoals ahead. We veered. As we did, the magnetic needle of our locator fluttered. I yelled a command. The schooner swung around. The crew boys knew I'd found something. They jumped to it with a new excitement; and it wasn't long afterward that we had the schooner anchored at the spot where the needle had quivered. Checking the chart again, I found we were not as far away from the spot indicated on it as it had seemed.

"Get the gear ready," I said. "I'm going down."

It was the middle of the afternoon when they slung the robot over the side, and I cut the surface and sank into the water. The robot descended slowly, bumped once against a huge pile of rock that rose from the ocean floor, and proceeded along the high underwater cliff. The machine struck bottom at twenty-one fathoms, a muddy, sticky bottom.

"Move me along a bit. Too muddy here," I called into the telephone.

"Okay," the answer came back. I felt myself lifted a bit and pushed outward. The robot came down again, on sand this time. When the lights were turned on, I saw I was standing in a wide clearing of sand among great piles of rocky cliffs. Right in front of me was the wreck! The finder had justified itself nobly. After all our fruitless cruising about, here I had dropped right down on the hulk I was seeking.

She was lying on one side, half heeled over, and there was a tremendous hole in her curved bottom where she had hit the rocks. She was all covered with sea growths and coral encrustations. One of her masts was snapped at the deck line; the other still stood erect, sticking far out into the darkness of the water.

Two sharks came over to investigate me, their long gray bodies flicking here and there at the cables; but I didn't worry about them in the robot, and after a time they went away. At a signal to the deck I was shifted up on the slippery side of the old hulk. Balanced there, I could see out of the vision plates her high poop, curving off on a jagged length of rock, while her bow was nuzzled into a great pile of sand. I spent an hour going over her, finding old gear, cannons and cutlasses, searching for the best place to plant a charge. I knew I'd have to blow her up, because there was no other way to get inside with the robot. When I found the likely spot, I called into the telephone for the ascent.

" 'Okay,' the answer came back."

The seamen were most enthusiastic when they took me out of the robot and I told them what was down there. They wanted to know if I was going to fix the charges right away. I told them, "No. Too late today. First thing in the morning." They were impatient that night, talking about how much there might be in the hulk, whether I'd find the chests, what trouble I'd have. It's always that way. The weather was what was troubling me, for when I went on deck big banks of clouds were coming in from the sea and the wind was freshening.

It did rain in the night and blew a bit, but the morning was warm and clear. They sent me down

– "and I cut the surface and sank into the water."

in the robot early, after we had moved the schooner a little to get her right over the wreck. I landed right on her. It was a little troublesome to keep the machine steady on the hulk, because of the way she lay; but I found the spot for the charge, grabbed the lines with the packaged explosive, and put it in place. Then aloft.

When she blew, the schooner gave a tremendous heave; the water boiled around us for a long while; dead fish floated away among snapping sharks. It was hours later before the muck cleared and the sharks disappeared. Then they put me over again.

Down at the bottom in that clear space of sand, timbers lay scattered in haphazard fashion; all sorts of gear cluttered the whole floor of the sea. The charge had broken the hulk almost in two; she lay open and gaping; I saw a place amidships where the robot could enter to look for the chests, if any. However, before I did that, I wanted to see if I could identify the ship, so I looked over the remains of gear that were strewn around, examined the cannon, and had myself moved up toward the bow. There was nothing to show what she was; the stuff I could find was unmarked. I couldn't get at the stern, since it was wedged up against the rock pile, and the bow was plunged too deep into the sand bank to see any name.

"I'm going in," I called up.

The powerful searchlights led the way as my ball moved into the hulk; the claws of the robot crushed through rotted planking of an old bulkhead.

"Here it is!" I shouted into the telephone. And the echo of "He's found it" came down to me.

In a corner of what had once been part of a big cabin I saw the little chest right before me, a bound iron one with a round top.

"Give me the lines."

They lowered the net. It was quite a job to get the chest into the steel sling; but at last it was safe. "Heave away," I signaled. The chest went up. While I searched for another chest, or anything else that might be valuable, I heard the hammering through the telephone. Curiosity about the contents of the find was more on my mind than the rest of the hunt. After half an hour's search, I decided there was nothing else worth bothering about. They hauled me up to the deck.

Out of the robot, I watched the boys at work on the strongbox. They found it tough going. Then a bar caught leverage, the top swung back. We stared down into the chest. There we saw the neat rows of mouldy pouches; the old coins, thickly encrusted, were peeping through. We reached over and grabbed some, then ran them through our hands, scraping them to find the gold and silver underneath.

For just a brief flash, there was that silence, a kind of awe that you feel at times like that. You've come a long way for treasure; you've planned and prepared and worked and run all sorts of risks. Then—success! There it is in front of you, gold and silver coins that have been at the bottom of the sea for centuries; now it's yours; you've got what you came for. It's quite an intoxicating moment.

Then everybody broke loose with cheers and laughter and good-humored mauling and pushing.

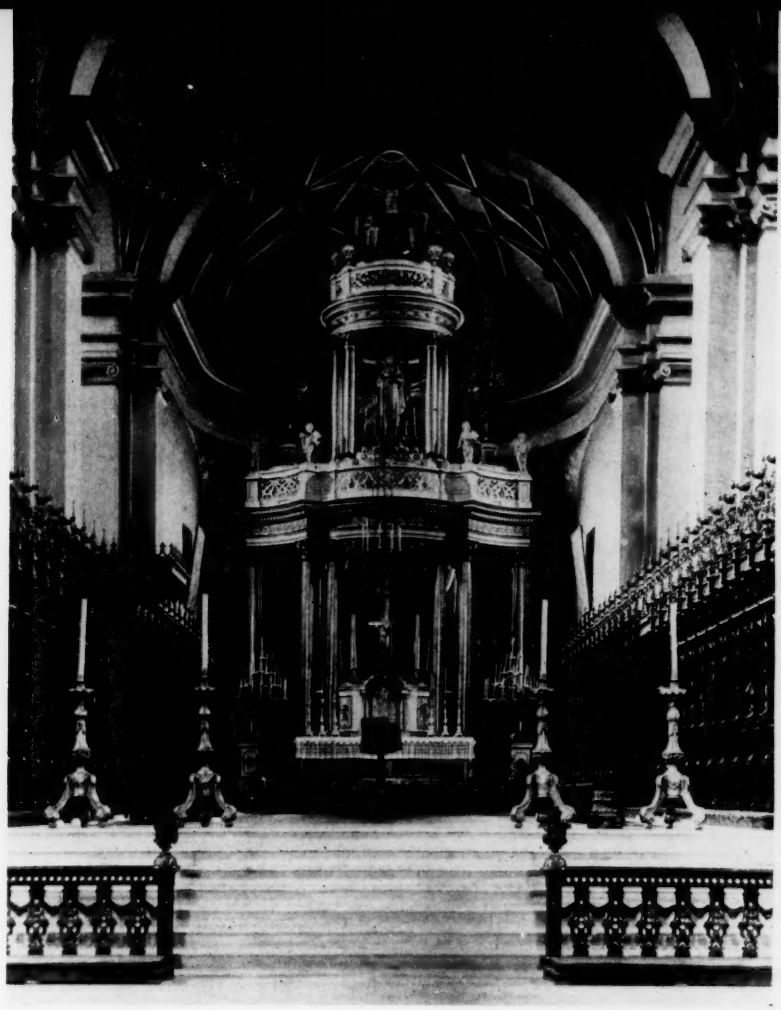
That night we sailed out of Manta Bay, and I knew we'd hauled up doubloons, pieces-of-eight and other coins, which would bring in about $15,000. We made for Callao. This trip had been a short one, we'd found our treasure, and I wasn't in too much of a hurry to get home. Besides, I wanted to go to Lima, see the celebrated Cathedral where the "Loot of Lima" allegedly was plundered, and get some information about the Golden Virgin, certainly the most valuable piece in the entire haul.

From the port I made the journey up to Lima. There in the shadowed Cathedral I met a priest. He smiled when I told him I was interested in the Golden Virgin.

"The Golden Virgin, señor?" he said. "Si, come with me."

I thought he was taking me to an office where we could have a talk. But he stopped suddenly. "There, señor. There is the Golden Virgin!"

Looking up, I followed the line of his forefinger. In a niche above a magnificent central altar, lighted by the flickering brilliance of candles, stood the golden figure of the long-worshipped Madonna. I was bewildered, amazed. I said, "But I thought this had been stolen?"



"There was the Golden Virgin" – the famous statue had never left its place high above the altar in Lima's great Cathedral

"No, señor. Never has it left this place. Neither has any of the other treasures of the Cathedral. Never as long as the Cathedral has stood."

I stared again. There was the Golden Virgin all right, and too, the twelve Golden Apostles—all of them included in Thompson's imaginary loot. Nor, I learned, had there ever been a war between the two countries—Peru and Chile—during the years mentioned.

Later on I was to check further and to receive a letter from A. Stanley Fordham, British vice-consul at Lima:

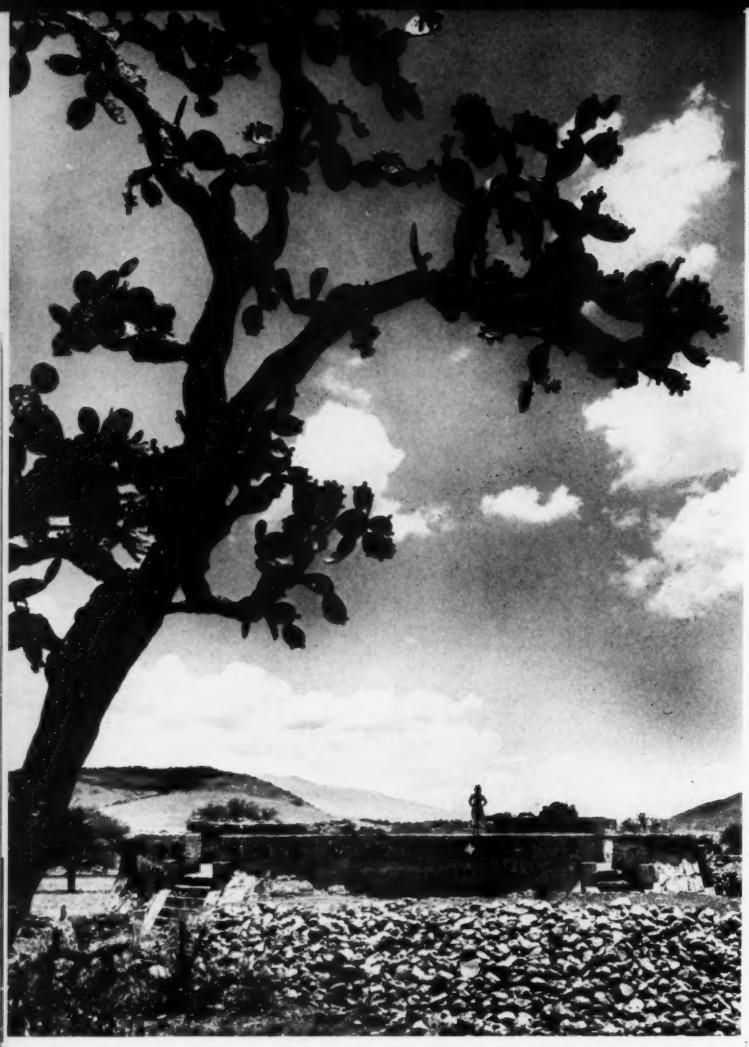
With reference to your letter regarding the Cocos Island treasure, commonly known as the "Loot of Lima," I regret to inform you that although various persons have been consulted, including the head of the National Library, who is possibly the best informed authority on Peruvian history, it has not been possible to obtain any confirmation for the stories which connect this treasure with Lima.

So William Thompson's tale had no historical background whatsoever; and Mary Welch's story had already been discredited.

Bearing in toward the Pacific end of the Panama Canal on the homeward journey, not long after the visit to the Cathedral at Lima, I glanced over the rail of the schooner, looked across the swells toward where lonely Cocos Island lay, 540 miles to the north. I thought of the thousands of treasure seekers who had gone there, after a figment of some distorted imagination. Small wonder they found nothing. There never was anything to find.

I felt sorry for Cocos Island, sorry for patient old August Gissler. There ought to be a gold cache there: he would make such a fine ghost guardian for it, striding along the shores of Wafer Bay, tugging with big-knuckled fingers at his white beard, staring seaward at the latest shipload of eager treasure seekers, muttering gutturally:

"Dey are fools—all of dem! Dere iss no dreasure on Cocos Island!" END



From beneath a giant Nopal cactus we saw for the first time the ancient Toltec temple at Ixtlán del Río in the Mexican state of Nayarit. What was its history?

Before an ancient ruin can be restored, or rebuilt, the archeologist must reconstruct or visualize it on paper from the evidence of what he finds upon or under the ground at the site. Quetzalcoatl's temple at Ixtlán is thought to comprise in one building an earlier and a later structure, one enclosing the other. This is how the archeologist, Professor José Corona Nuñez, drew the second temple, as it probably looked when first built and as it will appear when completely restored. The inner, first temple, with its Latin-cross "windows," can be seen through the gap in the outer wall, center foreground. The temple's greatest height is 13 feet, its diameter 75 feet.

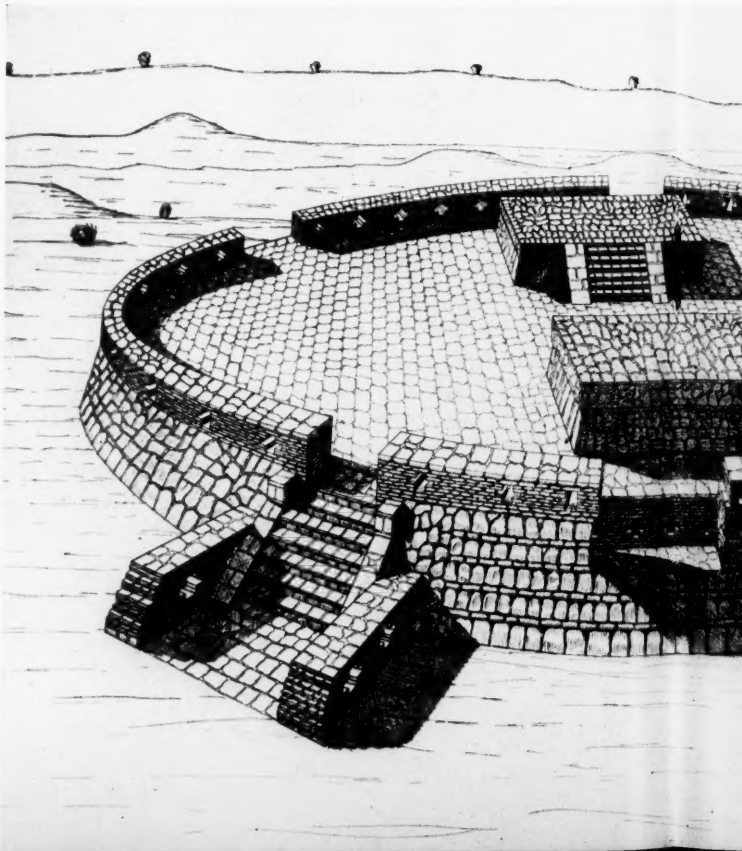
GEORGE · M · BRADT

Quetzalcoatl's Te

PHOTOS BY THE AUTHOR

THE THRILL THAT MUST HAVE BEEN Cortés' when first he looked down upon the Aztec capital of Tenochtitlán, or Coronado's on viewing from afar Zuñi's long-sought Cities of Cibola, was recently, though but fleetingly, mine.

My wife and I had stopped just beyond the small Mexican town of Ixtlán del Río, near the eastern border of the state of Nayarit, to look for the river which the town's name and our meager Spanish told us was near-by. Climbing a low, boulder-strewn hill in order to get a view of the surrounding country, we were confronted by a scene which will long be vivid in our memories. Slightly below us, framed by the grotesque arms

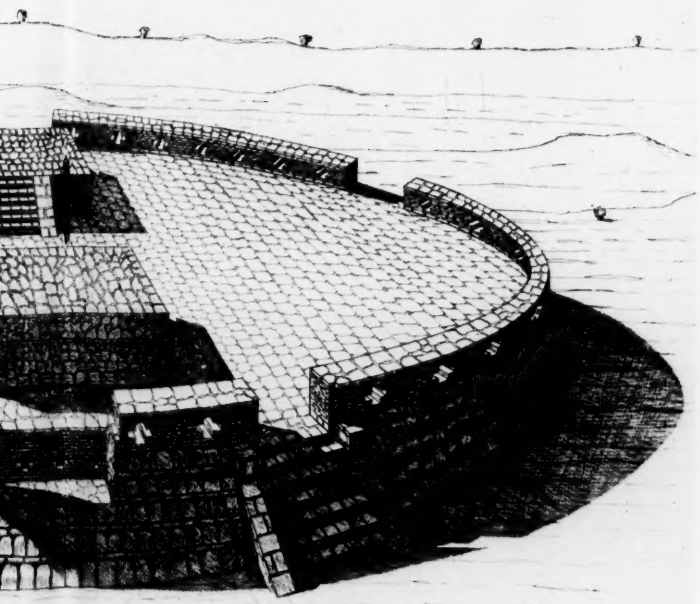


's Temple at Ixtlán

This representation of the god Quetzalcoatl and one overleaf are reproduced by courtesy of the Pemex Travel Club Bulletin.

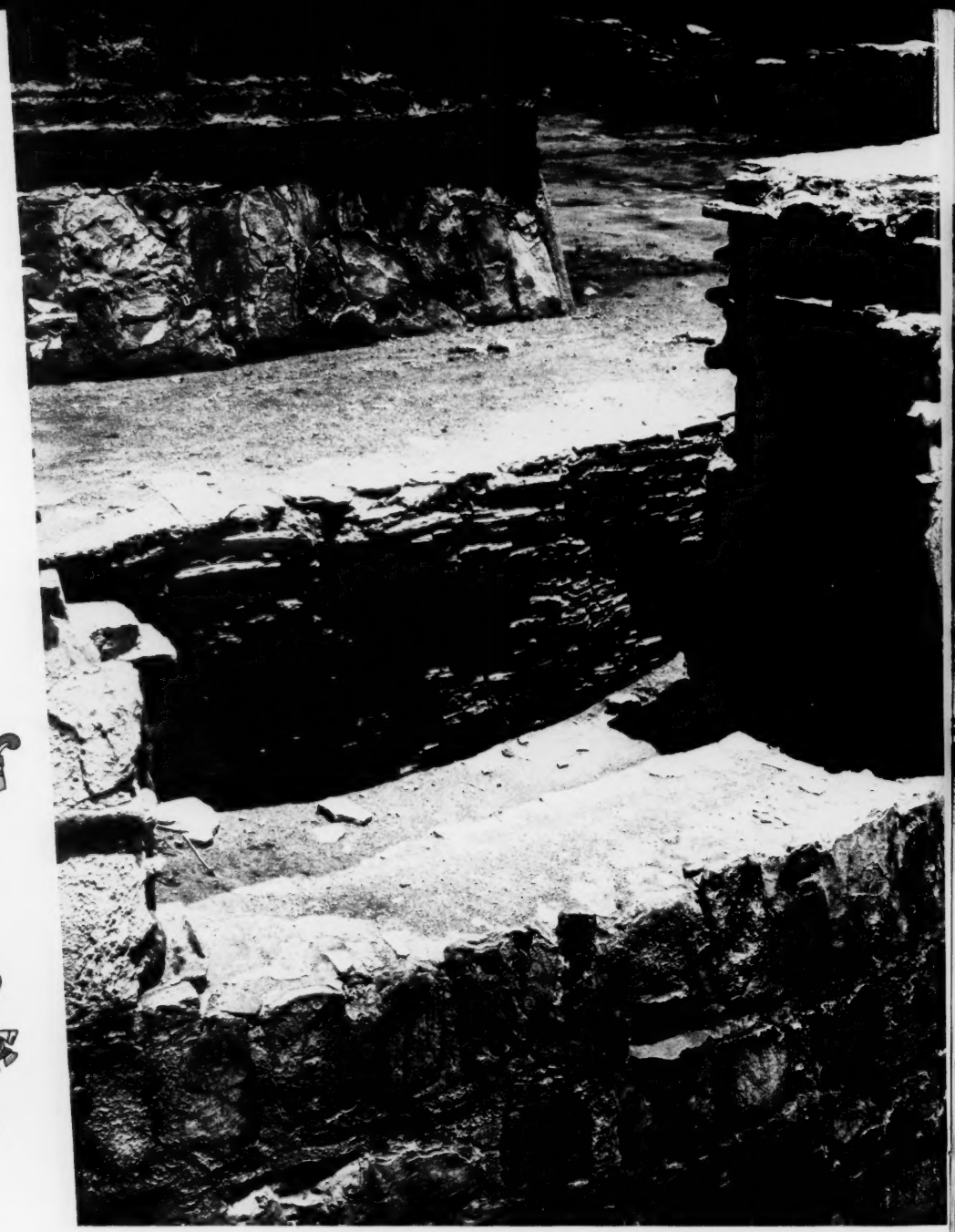
of a giant cactus, stood an ancient Indian temple. A photograph cannot do justice to that scene, nor recapture the haunting aura of the past which hung over the place. It would have taken little imagination to have peopled that long-deserted temple with gaudy-robed priests performing pagan rites beneath the blue sky, where high above us summer clouds drifted—in our imagination—like puffs of incense-laden smoke from the now cold altar fires.

A closer inspection, however, told us we were not the first to visit that graceful, truncated pyramid. For although portions of it were in a state of disrepair—suggestive of great age—the handiwork



of the expert archeologist could be discerned in much of it. Crumbling stairways had been rebuilt, fallen walls replaced, and the depredations of treasure-seekers partially obliterated. But though approximately two-thirds of the temple itself had been restored, the ground surrounding it was virtually untouched – a "pot-hunter's" paradise of obsidian tools and weapons, broken ceramic figurines, and fragments of beautifully decorated pottery.

As we explored and photographed the ruin we became more and more intrigued with our "find." What peoples had built this temple so far from the Valley of Mexico? To whom was it dedicated? When had its builders flourished? And who was responsible for its restoration? These were but a few of the questions which not only came to our minds, but also sent us to seek their answers in Nayarit's spotlessly clean capital city of Tepic, just fifty miles to the west.



The following morning we visited the Governor's Palace where the state's *Departamento de Turismo* is located, and where we found its chief, the well-known poet, scholar, and historian of Nayarit, Sr. Everardo Peña Navarro. After we had made our desires known to him in halting Spanish, Sr. Peña Navarro politely informed us in the same language (he spoke excellent English, we learned later) that if we would step into the next room our questions would be answered by the one man best qualified to do so — the excavator and restorer of the Ixtlán ruin — Professor José Corona Nuñez. Professor Corona was the epitome of graciousness as he told us that the rest of the day was ours to ask questions about the temple, and to photograph the artifacts already recovered from the area and

This 14-inch clay figure of an ancient warrior of Nayarit is complete with helmet topped with what appear to be "buffalo" horns, with a war-club – this may once have had a stone at its upper end – and with no pants. The thick chest-protector in actual life was made of agave or palm fiber (ixtle).

This carved stone rests in the second temple's east wall; the figure probably represents the cross-section of a marine shell, symbolizing Quetzalcoatl, Toltec god of the sea.

Close-up of the gap in the outer wall shown in Professor Corona's drawing. This section of wall with the three Latin-cross "windows" is a detail of the earlier structure enclosed by the later temple. With its over-all diameter approximately 65 feet, the older temple can be seen only where part of the later wall has been removed.

Seven steps lead to the altars on top of the pyramid – the same steps that Toltec priests climbed a thousand years ago.

Ixtlán pottery —
a small cream-colored olla *or bowl decorated with a "tiger skin" design in red; a small water jug, its shape reminding one of the double gourd water bottles carried by the Mexican laborer of today; and a kidney-shaped red-on-cream bowl designed to be held against the cheek to catch the blood flowing from pierced ears.*

preserved in the Museum of Nayarit, of which he is the director.

Showing us one fascinating object after another, Professor Corona told us the story of the Ixtlán ruin as it has been so far unfolded. The work of excavation and restoration, carried on under the joint auspices of the state of Nayarit and the national government in Mexico City, was begun in 1947. Thanks to the sympathetic and generous attitude of Nayarit's popular and progressive governor, Gilberto Flores Muñoz, the work has progressed rapidly — as the monument itself and the museum's amazing exhibits attest.

After beginning excavation, however, Professor Corona discovered that instead of a single pyramid he had on his hands a ruin really made up of two distinct structures — it had, in fact, at one time been composed of three. The temple shown in the photographs completely covers a smaller, and of course more ancient, structure which is

only visible where a part of the main temple's north wall has been removed. Although this lower structure has not been thoroughly investigated, its form and construction, and particularly a window-like series of Latin crosses running around its upper wall – identical to a similar series adorning the second temple's balustrade – seem to indicate that both were designed by architects of one race. These, Professor Corona believes, were the fabulous Toltecs, Mexico's temple-builders preëminent.

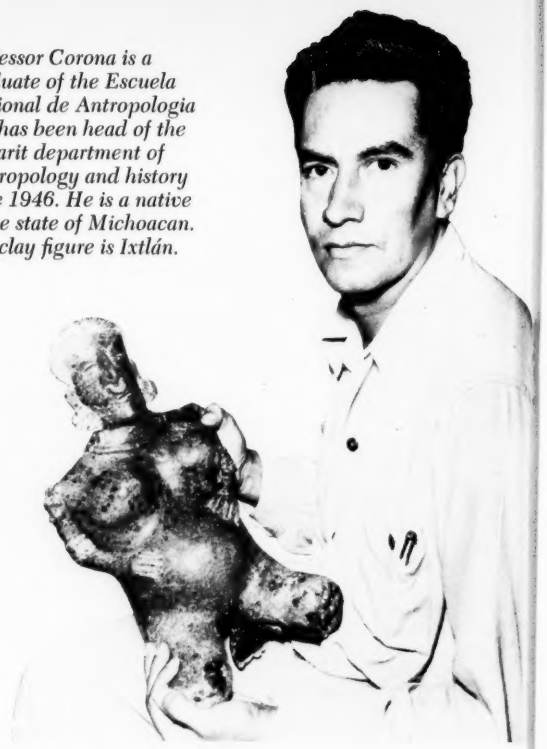
Perhaps the inner structure was built by the wandering Toltecs while on their way from their mysterious home in the northwest toward Tula (Tollán) and the Valley of Mexico some time prior to 900 A. D. If, as guesses go, they had pushed down the hot green coast of Nayarit, malarial and jungle-grown, the early Toltecs must have thought the Ixtlán valley, with its small river, an ideal spot. The existence of their low temple indicates a protracted period of rest from their wanderings. From this point they must have explored the land to the east – the fearful barranca-country of Jalisco lying directly in their path to the Valley of Mexico, four hundred miles away. Even today a trip over the seemingly bottomless gorges of western Jalisco is enough to make the traveler grateful when his train stops in the town of Tequila, where for a few cents he can imbibe enough of the potent beverage for which the town is famous to make him forget the abysses he has just crossed, and to scorn the ones that lie ahead. Whether or not the Toltecs had such a liquid courage-builder may never be known, but certain it is that in time they did conquer those deep and shadowy canyons to leave far behind them the Valley of Ixtlán and its little stone temple.

Ixtlán figurines – the 1,000-year-old American dowager (LEFT) *sitting on a low two-legged stool in her shell earrings (has she mislaid her lorgnette?) belongs to the so-called Transitional Period of pre-Cortesian American art, between the Archaic and Toltec periods. The two old gossips* (RIGHT) *have the split lips commonly found in the sculpture of this region. It is not known whether the origin of this is natural or ceremonial, but to this day persons so formed are called in Tarascan* cucho – *"made by the moon"* (tomado por la luna). *One old woman holds a limp* tortilla, *the unleavened bread of the usual Mexican meal since ancient times, and wears a shell nose-ring.*

The second, or principal pyramid, though undoubtedly built by descendants of the first temple-builders, belongs to a considerably later period. Perhaps begun late in the tenth century, it seems to have been rebuilt or added to after the Toltecs

had begun to spread out from the Tula area early in the twelfth century. That this temple, like the earlier one, was the center of a large and stable population is evident from the number of burial sites excavated – some eleven "cemeteries" each containing from twenty to thirty tombs. As early as 1897, when the explorer Carl Lumholtz went through Ixtlán del Río, many small, startlingly realistic, terra-cotta figures were being turned up by farmers and the inevitable treasure-hunters. Although the native name is still *ídolo* or *mono,* they are neither idols nor representations of "monkeys" as the local people believe, but are simply figurines representing the dead with whom they were often interred. Several of the figures from the Ixtlán area are shown in the accompanying photographs and pictures of others may be found in Lumholtz' *Unknown Mexico.*

The most distinctive feature of the second temple is the Latin cross motif of its upper wall, a device found also in Tarascan temples. Another interesting fact is that the temple was apparently dedicated to the great Toltec culture-hero-god, Quetzalcoatl. High in the east wall is embedded a massive, rectangular, carved stone on which is discernible the cross-section of a marine shell symbolizing Quetzalcoatl, god of the sea. Professor Corona even believes – smilingly admitting there are many who will disagree with him – that in addition to being god of the evening and morning star (Venus), and of the wind and the sea, Quetzalcoatl was also the god of human sacrifice. The abundance of long, sharp, two-edged sacrificial knives of obsidian to be found in the temple's environs seem to indicate some such activity, although of course many other possible uses for them can be surmised. Perhaps eight forgotten centuries ago spectators like ourselves had stood on that mound before the temple to watch, not a giant black iguana sunning itself on the temple wall as we did, but a succession of brown-skinned



Professor Corona is a graduate of the Escuela Nacional de Antropologia and has been head of the Nayarit department of anthropology and history since 1946. He is a native of the state of Michoacan. The clay figure is Ixtlán.

sacrificial victims give up their still beating hearts to the blood-spattered priests and their blood-thirsty gods.

The third structure – a single section of thick wall and part of one wide staircase are the only remaining evidence it once existed – was perhaps raised by the southeastward-moving Aztecs, themselves on their way to the magnetic Valley of Mexico late in the twelfth century. Their route, however, has not been determined. While the great temple has long since disappeared, its stones carried away to be used for walls and buildings, the influence of its builders, whatever their origin, is felt to this day. One has but to look at the brown faces and straight black hair of the white-clothed farmers tilling their maize in the fields surrounding the temple, or try to pronounce the names of near-by towns – Ixtlán (place of obsidian), Ahuacatlán (place of avocados), and others with the Aztec suffix *tlán* signifying "place of" – to realize that the Aztec heritage will ever be a fundamental part of Mexico.

That, briefly and tentatively, is the story of the monument at Ixtlán, as we got it from our visit with its restorer, Professor Corona. And as the monument lies but a few yards off the paved international highway between Guadalajara and Tepic, only an hour's drive from the latter city, it will give to all who take the time to visit it, the same thrill, the same sense of having turned time back, as we experienced when we "discovered" our mysterious temple at Ixtlán del Río. END

ELIZABETH BORTON DE TREVIÑO

The Feathered Serpent and Quetzalcoatl

THE SYMBOL OF THE FEATHERED SERPENT runs through Mexican history to the present day, with overtones of emotional significance. It might be said, that to understand the Mexican character and culture, it is necessary to appreciate the feathered serpent.

The symbol itself is a tribute to the imagination of the ancient people who invented it. What other symbol compares with it, except perhaps the winged horse, the unicorn, or the Chinese dragon? The feathered serpent, combining the wisdom and the mystery and cruelty of the earth, with the spiritual idea of flight, and the rainbow colors of brilliant plumage, represents for us our life attached to the soil, and our dreams and hopes, which wing upward.

There is no clue to the anonymous genius who invented this sign. Suddenly it appears, in the Toltecan civilization, some six centuries after Christ. If it ever had form in a less assured shape, we have no evidence of it. And the symbol is an ideological one – rather than one of form – for the serpent is found coiled in its feathers, poised on the head with the feathered body undulating upward, or moving along the earth, with uplifted head.

In a curious way, the feathered serpent, simple and puissant symbol, became the rival of the bloody religions which were beginning to ravage the ancient peoples of Mexico.

The devotees of Huichilopochtli, god of war and eater of blood, began to tremble as they saw their own youth depleted. They began making war wildly, in order to take prisoners who might be used for the sacrifice, to satiate the god. The original idea of the sacrifice, poetic in implications, and awe-inspiring in its baring of the mystery of life and death, had given way to orgies of killing; like all emotions rooted in fear, it made monsters of its victims.

At about this time, in the Toltecan capital of Tula, known as "the rich and beautiful," a king came to the throne, who was also, according to tradition and law, the High Priest of Quetzalcoatl, or the Feathered Serpent. This king-priest bore the name Quetzalcoatl,

Reprinted from the *Pemex Travel Club Bulletin*, January-February 1947, by permission of the Pemex Travel Club, Mexico City, D.F.

The temple's south altar, not yet restored, shows the stonework typical of the entire temple's construction. The Ixtlán valley lies beyond.
The drawing of Quetzalcoatl (ABOVE, RIGHT) *is from the journal* Quetzalcoatl, *organ of the Society of Anthropology and Ethnography of Mexico.*

among others, and as such, he has gone down into legend and history. Again we do not know whether the religion of peace and mercy taught by King Quetzalcoatl came into being in his own mind, or whether it had been developing, slowly, in time, since some civilizations tend to become merciful with age. Nevertheless, he began to proselytize for the religion of the feathered serpent, which did not ask the human sacrifice.

Here it is interesting to reflect that the feathered serpent, while in time it might have changed Mexico from a warring and sacrificial group of peoples into a peaceful one, in an indirect way helped the Spaniards to conquer and to impose their own religion of justice and mercy, though it must be admitted that the Spanish were not always just nor merciful in their manner of converting the frightened natives.

In the legends and prophecies which had clustered around the feathered serpent god, was one which said that in years past he had indeed walked the earth, but that he had disappeared into the blinding sunset on the sea, south of Mexico, far to the south. But, he would come again (all religions carry this germ of nostalgia — when, oh! when will the good and beloved one come again?—) and raise his followers to prosperity and happiness. He would come in the form of the Fair God, and he would come from the sea, into which he had disappeared. So when the Spaniards came, with their pale faces and bright hair, and their armor from which the sun flashed in blinding rays, there many who were ready to believe that Quetzalcoatl had come back. Though others did not believe, there was confusion and doubt, which helped, in its way, the Conquest.

But the influence of Quetzalcoatl begins back in the seventh century, with King Quetzalcoatl. The city of Tula, with its great temple of Quetzalcoatl, was famed far and wide. The temples and houses of the nobles were covered with worked jade and sandstone delicately carved, and the coffers of the priests and the rich men were heavy with treasures. The city was attacked by a wilder warrior people, and sacked. The worked stones were stripped from the houses, the temple of Quetzalcoatl was wrecked, and the King was driven forth.

Now this king was a poet and a great leader of men. Also he was a stone mason, and carver, and he knew all the secrets of building strong and true, for he was a Toltecan, which means "Builder."

He took with him his best stone masons and builders, and they went away to the South, converting the people as they went to the worship of the Feathered Serpent, and everywhere building shrines to the god Quetzalcoatl.

In all the legends we hear of the King who sat "and looked toward his lost Tula, and his tears fell down and scalded the stone on which he sat."

We can trace his progress in the appearance of images of the feathered serpent. First he went to Mexico, to the city on the lake, and the feathered serpent became part of the complex theology of the Aztecs, though they did not exalt Quetzalcoatl to the place of the dominant god, but preferred their voracious, heart-eating deities.

Then he passed through the prosperous country of Cholula, and so, slowly and gradually southward toward where the Quetzalcoatl had disappeared into the sunset on the sea.

Along the way we begin to find the feathered serpent idealized and beautified and elaborated, until it reaches its most beautiful expression in the Mayan temples of Chichén Itzá. Most of those lovely ruins, we know now, were built under the tutelage of the Toltecan stone masons and artisans, who taught the Mayans their secrets of fitting stones and carving them, and who left with them many poetic decorative motifs, among them the Quetzalcoatl, which is so often seen as a columnar support, and as the theme of carved lintels and windows.

The poet king is much spoken of in the legends and epic poetry of the Mayan period coinciding with the buildings at Chichén Itzá, and also in poetry of the people farther to the south, the Quiches of Guatemala, who also built temples with the Quetzalcoatl motif.

The Feathered Serpent in stone (after photograph with accompanying article in the Pemex Travel Club Bulletin).

So, all over Mexico, wherever one finds the beautiful symbol of the feathered serpent, the comfort in exile of a poet-king-builder, we find evidence too of a struggle between the religions which exalted pain as the rightful tribute of the deities, and one which believed in preservation of life, and freedom from suffering.

In modern Mexican art and designing too, this favorite symbol appears in many guises, and continually returns to favor — an integral part of the psychological imagery of an artist people. END

Tarantula—Tarantella

WELDON D. WOODSON

ON A DRY HILL SLOPE near Los Angeles in the year 1923, several boys were pouring water from a quart jar into a dollar-sized hole in the ground. In a few moments a giant hairy spider popped up to the entrance of its burrow. With a dried stalk of wild mustard, one of the youngsters flipped the creature all the way out of the hole. Its leg spread appeared to be about four inches. Now the boys coaxed it into a glass jar, screwed on a perforated lid, and began looking around for another tunnel.

Watching the action, I knew the spider was a tarantula—I had seen similar ones in Texas. I was sixteen; with my family I had just moved to California, and was out to see what these grassy, dry hills near my new home would yield in the way of animal life.

Since that day I have captured hundreds of the giant California spiders in the same way those boys did. I have studied them, both where they lived and in captivity, and I've become interested in the life habits of other members of the Arachnida.

In the public square of a European town, one day in the Middle Ages, a group of people, young and old but more women than men, sat or lay about in an apparent state of extreme depression or, at least, of great lethargy. An ensemble of strolling musicians, hired for the occasion, began to play a lively tune. With little attention or curiosity from bystanders—the happening was not unusual—the benumbed roused themselves, one by one, seized by an urge to dance. Soon the whole group was whirling madly to the music, until, one by one, its members fell to the ground, each in a bath of sweat and, supposedly, cured on the spot of his malaise, or mania.

Such was the strange malady called *tarantism* after the town of Taranto, in Italy, which was believed to result from the bite of a large lycosid spider occurring in the vicinity, the tarantula, named also from the town (Tarentum of the Romans). Scientists call this spider *Lycosa tarantula,* the generic name coming from a Greek word meaning wolf—it leaps wolf-like upon its insect prey.

For several centuries, thousands of persons sought relief in the "tarantella" from the supposed effects of the alleged spider bite. The mania was believed highly infectious, capable of spreading from person to person throughout large areas.

They still dance the tarantella in southern Italy, but we now know the tarantula cannot inflict a serious bite. What caused the mania? Hysteria, religious fervor, and other causes have been proposed. Whatever started the wild dancing, it is now generally conceded that the spider bite story made a good line to attract the tossed coin of gullible onlookers.

In any case, the word tarantula has enjoyed evil repute ever since. Throughout the world, various kinds of large spiders go by that name. Our own "tarantula" was probably named by early European settlers pushing into the South, the Southwest, and to the Pacific Coast, because of its resemblance in size and apparent ferocity to the species they knew back home.

Our species belong to the family Aviculariidae and genus *Aphonopelma.* In the family name we recognize the Latin *avis,* bird; 250 years ago Marie Sibylle de Mérian, who published a work on the fauna of Surinam, stated that a South American species destroyed small birds—hence the name. Our commonest West Coast species is *Aphonopelma californica.*

For collecting tarantulas, I prefer August, September, and October, when the grass and weeds have died, and I can find the spiders' retreats. In November, when the rainy season begins, they tunnel deep to stay out of reach of flood waters. Then it is practically impossible either to flush them out or to dig them out with a spade. Should the entrance to the burrow have freshly dug earth heaped about it, I can be sure it is occupied or just recently vacated.

Occasionally a web has been spun across the opening. This may indicate that the resident is shedding its skin. At such times it is weak and helpless and the barrier hinders entry of its most formidable enemy, the tarantula hawk, a large wasp of the genus *Pepsis.* Often when I arouse the spider with water, it crawls up to within an inch or so of the surface, reversing its position so that it will be head down, and emits a few strands of viscid silk from the finger-like protuberances at the rear of the abdomen, the spinnerets. This web attaches to the sides of the hole.

I have also found a few threads across the entrance to its dwelling during the spring, when it deposits its eggs – feeble protection, possibly, against intruders. The eggs, about the size of BB

Dancing the tarantella (from a drawing by Pieter Bruegel in 1560).

shot, number 50 or more; the female encloses them in a cocoon about as big around as a medium-sized English walnut. Several times I have found an egg sac near the bottom after digging up a burrow. The embryos hatched in my laboratory—all tiny replicas of their parent.

In captivity, a tarantula may live to a dozen years or so. Its maximum life span has been estimated to be at least 25 years. If you want to keep one, put a layer of earth in the bottom of a glass jar. Keep it out of the sun, but not exposed to extreme cold. Punch air holes in the cover. Every week or so, drop in a tuft of green grass sprinkled with water; this will furnish its need of liquids. After a few days remove the grass. For nourishment, once each week toss in a live grasshopper, some flies, or other insects. At its leisure, the spider will suck out the juices of the prey.

A tarantula will survive for weeks, however, without food. As a test, I kept one fasting 246 days. But, with its abdomen considerably shrunken, it refused various kinds of insects, and succumbed on the 259th day.

Caution: don't house two tarantulas in the same container. Leave them there overnight—even less than an hour in some cases—and next morning only one will be found alive. Spiders are generally cannibalistic. Females prove antagonistic toward females as well as toward males. The scarcity of the latter in its native state suggests that after mating the female, if hungry, will feed on him. One may take several hundred, even a thousand, female tarantulas without finding a single male. But in 23 instances I have found the carcasses of males in the burrows of females.

One should be careful, however, not to mistake the shed skin for a dead spider. Frequently, persons have pointed out to me a casting in the orb web of a garden spider, or in the nest of some other kind, with a comment it must have been a victim of the spider. It is easy to show them that what they see is actually the discarded skin. Some spiders molt eight times or more during their growing period. Two or three casts may be found in one web.

How do you tell a male from a female spider?

With a leg spread sometimes exceeding four inches, the tarantula is the largest spider in the United States. The two small finger-like projections from the rear of the abdomen are the spinnerets.

She may be much the larger. They may differ decidedly in color pattern, nest, or diet. One sure way, however, is to look at the so-called "feelers," the pedipalps. In the female, they are more or less leg-like in their entire length; those of the male end in a bulb- or knob-shaped enlargement—the intromittent organ.

The external opening of the reproductive organs, though, is on the lower side near its base. When mating time approaches, the male spins a delicate web onto which it emits the seminal fluid. He extends one of the pedipalps, gathers up the fluid, and stores it in a tubular cavity. When pairing, he passes this to the female's spermathecae.

How do you tell a spider from an insect? People sometimes count the spider's pedipalps as a fifth

These burrows belong to a tarantula "town" on an adobe hill slope in the northern section of Los Angeles.

Seattle suburbanites

UNION BAY: *the life of a city marsh.* By Harry W. Higman and Earl J. Larrison. University of Washington Press, Seattle. 1951. viii + 315 pp., drawings, end-paper map. $4.00.

Union Bay is a sizeable indentation on the western shore of Lake Washington, adjacent to the University of Washington campus. It provides a refuge for wildlife almost in the heart of a great city. Although civilization has steadily encroached upon its margins, there remains a substantial area of marshland which, happily, is extremely difficult to reclaim and which supports an astonishingly large and varied population of birds and small mammals.

Within a stone's throw of the athletic pavilion, stadium and football practice field, with all the bustle and excitement which these facilities entail, herons stand waiting in silent patience for the unwary fish or frog, pied-bellied grebes construct their floating nests, numerous ducks and shorebirds are at home, and beaver, mink and muskrat may be found. This reviewer knows the area well, and in years past spent many happy hours exploring it with his students.

The marsh is best explored from a canoe, and the authors of this book have done their canoeing to good advantage. They are careful observers – Higman, a Seattle business man who has made outdoor life and nature study his avocation, and Larrison, a former student at the University of Washington who is now a biology professor at the University of Idaho. They have pooled their observations over a period of years, an dhave pooled them so successfully as to come out with a book that is a unified whole, with no indication of who saw which or who wrote what. This in itself is quite an achievement.

The volume presents to the general reader an interesting, well-rounded account of the ecology of a marsh – the complex interrelations of its animal and plant inhabitants. ItI also provides an unusual amount of miscellaneous information and comment, culled from sources as diverse as Aristotle, Theophrastus, Pliny, Chaucer, Lewis and Clark, and Joseph Grinnell. This is good reading, both for arm-chair naturalists and for those who want to explore a marsh.

R. C. M.

Of lice and men

THE SUCKING LICE. By G. F. Ferris. Memoirs of the Pacific Coast Entomological Society, Volume 1. California Academy of Sciences, San Francisco, 1951. xi + 320 pp., 124 figures. $6.00.

With "The Sucking Lice," the Pacific Coast Entomological Society launches its Memoirs Series, in which it is planned to publish book-length monographs. The first volume is by Professor G. F. Ferris of Stanford University and is in the unmistakable style that has gained for the author a reputation as "one of the very foremost of entomological artists." In typical Ferrisian style, the drawings are brilliantly executed showing the dorsal surface on the left side and the ventral surface on the right side. Every bristle and hair is faithfully recorded in an exceptionally high grade job of offset printing done by the New York Lithographing Corporation. The binding by Chas. Bohn & Co., New York, is sturdy blue Buckram.

A fly-leaf quote from Henry Denny, 1842, states "In the progress of this work the author has had to contend with repeated rebukes from his friends for entering upon the illustration of a tribe of insects whose very name was sufficient to create feelings of disgust." In this volume the author has, perhaps inadvertently, not only redeemed the

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pair of legs, but of course the spider has only four pair of walking legs, the insect three. In the spider, head and thorax join in one section, with the abdomen forming another; the insect has separate (even if sometimes apparently joined) head, thorax, and abdomen.

To the inevitable question whether tarantulas are really poisonous, I reply that they are, but so are other spiders. Each is equipped with poison glands and a "fang"–scientifically speaking, the chelicerae, used to subdue its natural prey. In the United States, however, man need fear only the black widow spider (*Latrodectus mactans*). This is taking into consideration California's giant tarantula. Although the poison it secrets is copious, it is fairly weak, and the pain at most will not exceed that of two or three honeybee stings. Furthermore, our predominant species, *A. californica,* refuses to strike unless teased greatly. One may bat it around with the rubber end of a pencil for 15 or 20 minutes before it will attack.

Tarantula cannibalism furnished early-day prospectors, cattlemen, and surveyors with amusement. By moonlight after a day's work, they would mark an arena on the ground, and throw in two evenly-matched tarantulas they had caught during the day. With a little prodding, the two arachnid gladiators would strike at each other, their respective backers shouting encouragement and placing bets.

A more enlightening and no less enjoyable sport is hunting tarantulas for the purpose of studying their habits. In some parts they burrow no holes of their own, but live in cracks or in the runways of other animals, or under boards and in refuge heaps. But in the adobe hills of Los Angeles' northern section, they hew out their own quarters. When you find one hole, you will find others, for they live in "towns." They are nocturnal – I've often hunted them by flashlight and followed them as they foraged for insect prey. Then, with its giant, hairy body silhouetted, I could easily imagine why since early times folk have looked with awe upon the tarantula. END

lowly louse but glorified it. Figure 34, for example, depicts the louse of the southern sea elephant and the drawing at least (we have not seen the living louse!) is a thing of beauty. The same may be said for 124 pages of figures illustrating the type species of all of the genera of Anoplura of the world and each of the species that occurs on man and on domesticated animals.

The general reader will find the discussion of "the problem of the Pediculi of man" to be the most fascinating part of the book. When Professor Ferris finished this part of the manuscript he facetiously proposed an alternative title. "The Sucking Lice, with special reference to the species attacking man and the other apes." As a result of his studies of "head" and "body" lice of Europeans, Eskimos, Hindus, Arabs, Negroes, American Indians, Chinese, and various monkeys, gibbons, etc., the author accepts only four forms of the genus *Pediculus* which "have a reasonable claim to be recognized as species." One of these occurs on chimpanzees, two occur primarily on monkeys of the family Cebidae and one is intimately associated with man. The latter, known scientifically as *Pediculus humanus*, also occurs on monkeys and gibbons in captivity. The human louse, though treated as a single entity, is extremely variable. For example, the lice from Negroes in Africa are very darkly pigmented, their bodies are compact and their length is scarcely more than half the length of the European body louse. Other specimens show every degree of gradation between the two extremes. The author concludes that "these Pediculi may very well have begun to develop into genetically differentiated forms upon the various races of man . . . But as their hosts have intermingled with each other the opportunity for the intermingling of the parasites has also occurred. Thus we arrive at a condition among the parasites which may rather closely parallel the condition found among their hosts." ROBERT L. USINGER

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University of California, Berkeley

Books of years

A SAND COUNTY ALMANAC *and Sketches Here and There.* By Aldo Leopold. Oxford University Press, New York. 1949. xiii + 226 pp., 33 pencil drawings by Charles Schwartz. $3.50.

THE TWELVE SEASONS: *A Perpetual Calendar for the Country.* By Joseph Wood Krutch. William Sloane Associates, New York. 1949. 188 pp., chapter-head and tailpiece decorations by Armin Landeck. $3.00.

"Who follows the lines [of these essays] must expect to find moods as varying as the seasons; to face storm and night and cold, and all other delights of what wildness still remains to us upon the earth."

Prefacing thus the fifty-two essays of *The Log of the Sun* (New York, 1906), William Beebe called tune for a kind of book, aptly, if not to current ears somewhat primly, catalogued by his own subtitle, *A Chronicle of Nature's Year.*

If we apply the test of currency, we must rate *The Log*, by comparison with *High Jungle* (New York, 1949), early Beebe; but we are bound to turn up some side conclusions about the perpetual currency of Beebe. Judging *The Log* on its own as example of a literary class, the nature almanac or calendar, we may be most grateful William Beebe wrote his third book *north* of North America's 38th parallel, before heading south again for a lifetime of tropical research, because *The Log of the Sun* as a perpetual calendar of nature within the familiar frame of our own four seasons, and as writing about nature, set a standard no writer may flout and hope to stay current.

Another reason to thank the few of our top nature writers who have given us such books: they remind us we needn't go to tropic jungles after the material for great nature writing. We're glad Beebe went down from Bronx Park to the *Edge of the Jungle* and on inside; but we're fortunate, too, that Donald Culross Peattie, for instance, stayed home. *An Almanac for Moderns* reminds us that nature is still quite current in and around Washington, D.C.

Since we were under reading age when Beebe's *Log* was already ten years current, we couldn't give it its full 45-year test before writing this piece — anyhow, it's two other books we're attempting to review. These, pursuant to the vicissitudes of an editor's life, have been allowed to suffer their two-year test before appearing in this column. The point we wish to make is that Aldo Leopold's *Sand County Almanac* and Joseph Wood Krutch's *Twelve Seasons* will stand not merely a two-year test but, in our estimate, a 45-year test if our great-grandchild will give us back our spectacles long enough for us to make it. For the present, both these books are just as fresh this week as when the review copies hit our desk. We had intended in fact—a confession—just to skim through, this second reading, hitting the highs; but not to read again every word, at the pace of full enjoyment, was impossible.

It was a surprise when one of our best-known critics and men of letters (Joseph Wood Krutch is Brander Matthews Professor of Dramatic Literature at Columbia University and author of many other books) turned up in the front rank of writers on nature — except perhaps to those who knew him as New England country gentleman and authority on *Henry David Thoreau* (his latest title before *The Twelve Seasons).* With Mr. Krutch it is not a matter of being exposed to nature on country week ends, however. He is among those who, like Aldo Leopold, have the conviction of man's identity with nature, born of living with it, confirmed by observation and philosophical reflection. *The Twelve Seasons* came out of reflection on nature and man.

Mr. Krutch's calendar starts with April — it is late March or early April when the Spring Peeper begins to peep in southern Connecticut. If you, too, have lived through one or more Northeastern winters, you will agree with the frogs that it is more logical to begin the new year with the visible and audible reawakening of life about us, than with an arbitrary day on which "nothing happens except to the calendar." Men live too much by abstractions, Mr. Krutch holds: witness the absurd and inaccurate formula by which we labor to determine Easter — "how much easier it is to celebrate the Day of the Peepers instead, and how much more meaningful too! On that day something miraculous and full of promise has actually happened, and that something announces itself in no uncertain terms."

Coming round to his last month, March — "an end and a beginning"—he reminds us that Julius Caesar gave us January 1, on the ground that it would take the Roman citizens ten days to sober up after the solstitial feast of the Saturnalia! (This is not so far-fetched, Mr. Krutch, considering

Wilderness again

EDITOR, *Pacific Discovery*
SIR:

Pacific Discovery for September-October 1951 is a wonderfully fine number, and most interesting to me. My husband and I took a hiking trip in the Three Sisters Wilderness Area country thirty years ago, well before it had been set aside as a Primitive Area. We have loved that country ever since, and have spent many happy hours in it. We had rejoiced in the farsighted wisdom of the U. S. Forest Service in setting it aside to remain permanently in its natural state. So when we discovered that they planned to remove a hundred square miles to the west, we joined with others in an effort to tell them why we did not think it was wise. They are good friends and fine people, they have listened, taken representatives of interested groups into the Area, but they still need more convincing. Ruth Hopson's article, so beautifully "set-up," with its pictures so finely reproduced, will certainly help in this. It should also acquaint those who can truly appreciate this country with its existence and its need of friends.

What a rare article is that of Harry C. James. It, with a quotation from Howard Zahniser . . . and Dr. Hopson's article, make a very effective statement of wilderness values. Thank you for all of this.

Borys Malkin's photo makes a fine cover, and as usual his article on his amazing African trip is very good reading. We appreciate . . . his letter on the Three Sisters Wilderness Area. RUTH M. ONTHANK (MRS. KARL W.)

Eugene, Oregon, 16 October 1951

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the state in which a good many American citizens choose to spend the Christmas-tide.)

Lest the devout among present readers accuse Mr. Krutch a priori of irreverence, from the quote above relating to Easter, it should be said without more ado that what stands forth from these chapters — and they are full of delightful humor as well as intriguing observations on meloid beetles, rain, protozoa, cats, and snow — is a profound sense of man's ineluctable relation to the greatest of mysteries: Life is whole, and man is a part, as He who said "Consider the lilies" knew. When man remembers this, and lives by it, there is harmony; he is at peace with the world and feels most completely at home in it. Then he can say, at winter's end:

I have been living through a year, not merely existing in an abstraction called time. This year has meant to me participation in a cycle, the awareness of an ebb and flow, of being part of a vital and complex process. To me July and August, January and February, have been epochs, each with a character of its own; seasons during which appropriate business was done by me and by hundreds of other creatures fascinatingly like and fascinatingly unlike what I am. At this moment I am standing on the threshold of a new year waiting to begin a new cycle of months forever familiar and forever new. . . .

If Joseph Wood Krutch is a nature-wise philosopher, Aldo Leopold was a philosophical naturalist. He hunted, fished, camped, or canoed with enthusiasm and consummate skill; he was, in short, an outdoorsman in the great tradition. His name is indelibly linked with the true conservation, through wise use, of our forest and game resources.

The Leopold family retreat—the late father of *PD's* conservation editor, A Starker Leopold, held a chair of game management created for him by the University of Wisconsin—was a run-down sand farm in central Wisconsin. His *Almanac* is compiled of its dunes, its marshes and rivers, its pines and oaks, its geese, woodcocks, and chickadees, its hunts, its snow and sun, its woodcutting, its memories of bison, passenger pigeons, and pioneers.

To quote from such a book is subtle cruelty, yet the best way to hint at the author's philosophy and poetry:

The same logic that causes big rivers always to flow past big cities causes cheap farms sometimes to be marooned by spring floods. Ours is a cheap farm . . .

Our lumber pile, recruited entirely from the river, is . . . an anthology of human strivings in upriver farms and forests. The autobiography of an old board is a kind of literature not yet taught on campuses, but any riverbank farm is a library where he who hammers or saws may read at will. Come high water, there is always an accession of new books.

The wind that makes music in November corn is in a hurry. The stalks hum, the loose husks whisk skyward in half-playful swirls, and the wind hurries on. In the marsh, long windy waves surge across the grassy sloughs, beat against the far willows. A tree tries to argue, bare limbs waving, but there is no detaining the wind. . . Out of the clouds I hear a faint bark, as of a far-away dog. . . . Soon it is louder: the honk of geese, invisible, but coming on. The flock emerges from the low clouds, a tattered banner of birds, dipping and rising, blown up and blown down, blown together and blown apart, but advancing, the wind wrestling lovingly with each winnowing wing . . .

One could quote from every page.

The *Almanac* ending, we come, in *Sketches Here and There,* to the parts where Leopold best reveals his philosophical kinship with Krutch. "It is a century since Darwin gave us the first glimpse of the origin of species. We know now . . . that men are only fellow-voyagers with other creatures in the odyssey of evolution. This new knowledge should have given us, by this time, a sense of kinship with fellow-creatures; a wish to live and let live; a sense of wonder over the magnitude and duration of the biotic enterprise."

Last comes *The Upshot,* a summary of the mature thinking of a seasoned conservationist on the much disputed ethics of conservation. Here, for one, is the essay "Wildlife in American Culture" which *PD* was privileged to run (July-August 1949). The closing essay, "The Land Ethic," is a manifesto. "Conservation is a state of harmony between men and land." . . . "A system of conservation based solely on economic self-interest is hopelessly lopsided." . . . "It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land." . . . And so on.

Here, then, are two thoughtful men, each writing from his own experience about the thing we call Nature, with knowledge, humor, wisdom — together reflecting man's deepest insights into his oneness with all life. These books are for all our years. D.G.K.

Index to Volume IV

ERRATA

March-April 1951 — Page 14, col. 2: FOR *Aestata* READ *Astata.*

September-October 1951 — Page 1 ("Pre-Discovery"): FOR Peru's READ Chile's; ("In This Issue"): FOR 18 READ 19. Page 16, col. 2: FOR ration READ relation. Page 17, col. 1: FOR fifteenth century READ sixteenth century. Page 18, col. 2: FOR Napolean II READ Napoleon III.

Page 18, col. 2, footnote: There is a discrepancy between the time given here for the complete rotation of the pendulum, and the time given in the drawing on page 16. The time given in the footnote is the result of a more refined calculation performed after the cut had been made. This fact should have been mentioned in the footnote.

With Number 5 of this volume, PD *has, we believe, set itself a new record for typographical errors. We trust this record will stand unbroken. Readers who discover errors are requested to write us.*—EDITOR.

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